SEPTEMBER, 1960

TRAFFIC ENGINEERING

CONVENTION ISSUE

30th Annual Meeting
Institute of Traffic Engineers
September 12-15, 1960
Chicago, Illinois

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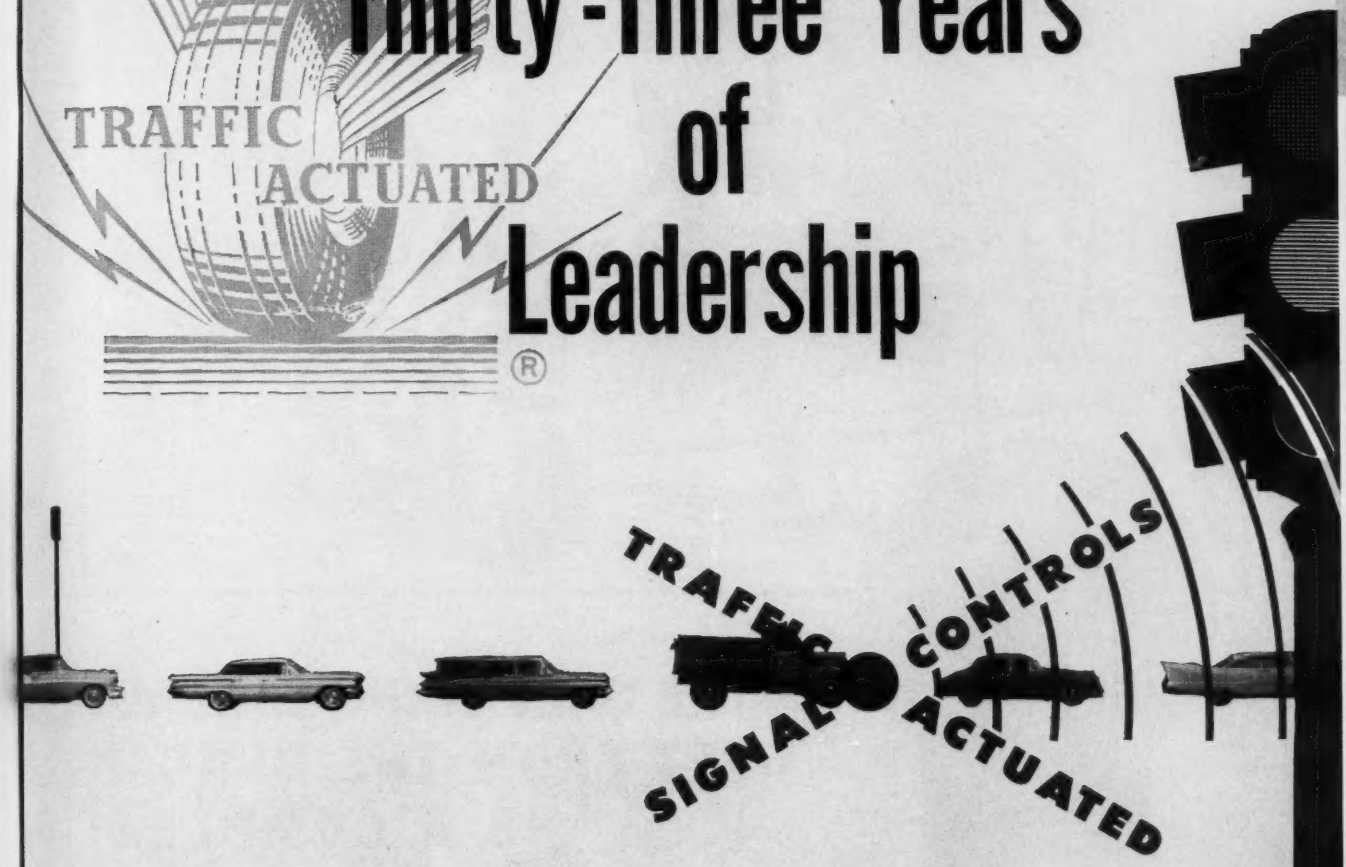

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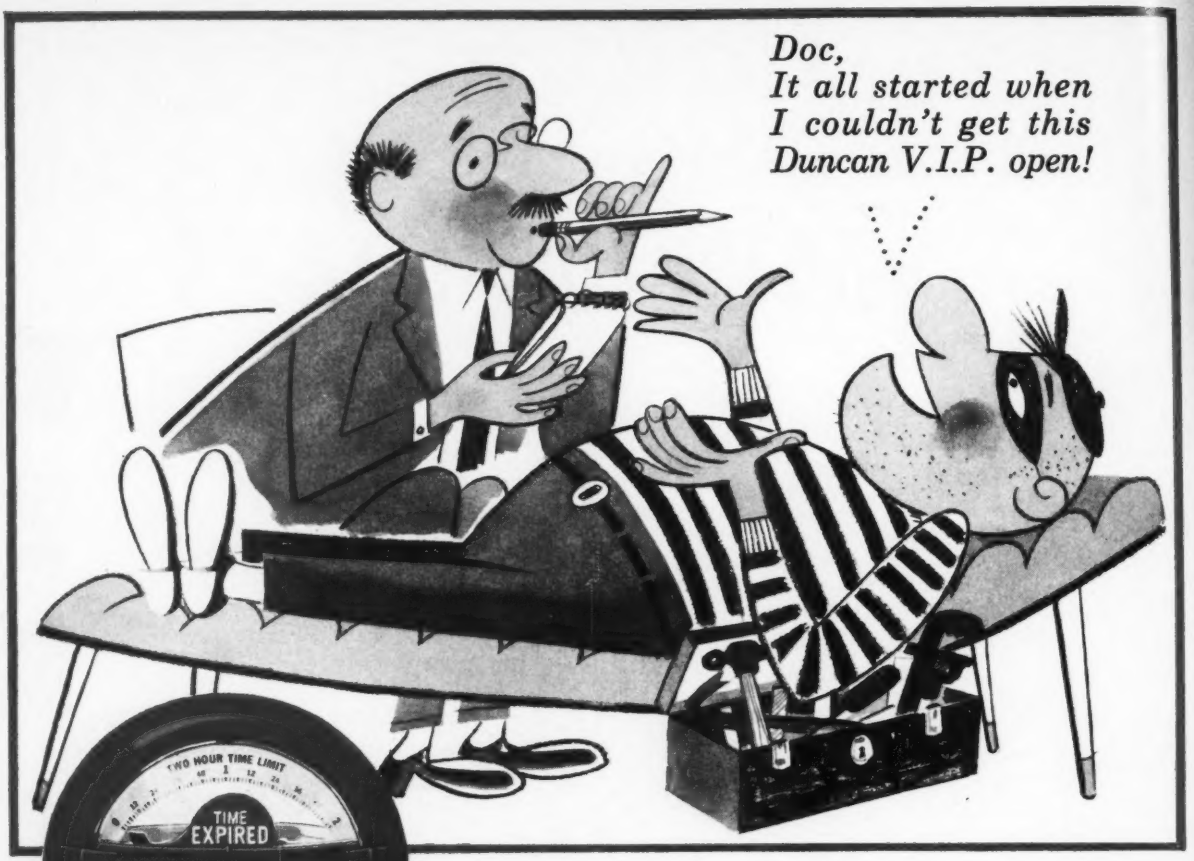

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TRAFFIC ENGINEERING

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

Vol. 30 SEPTEMBER, 1960 No. 12

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COVER: Central business district of Chicago, Illinois, host city to 30th Annual Meeting of Institute of Traffic Engineers.

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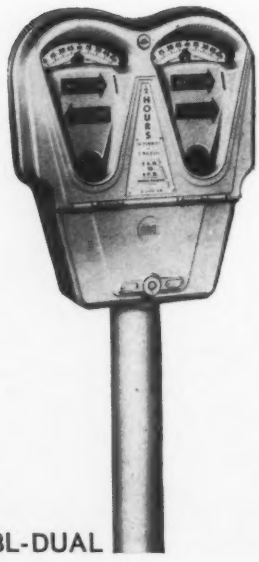

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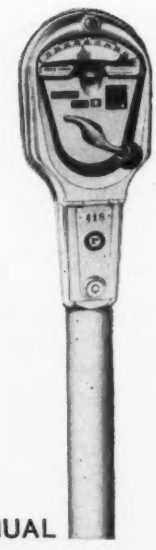

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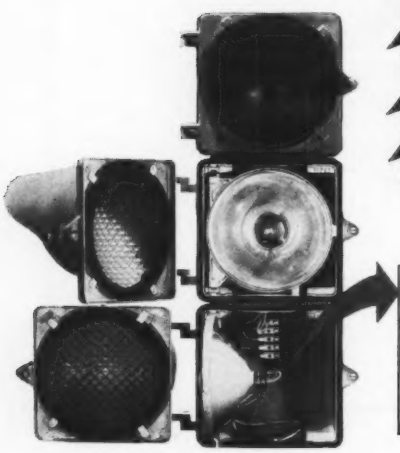
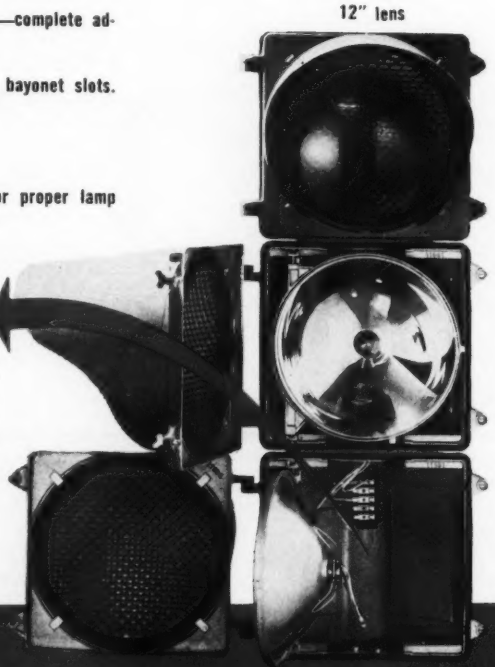
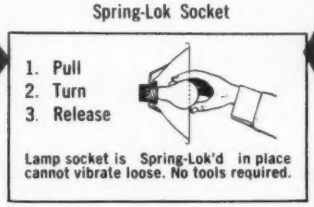


M–12
12" lens



Spring-Lok Socket



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Frankly Speaking . . .

AS WE ASSEMBLE IN CHICAGO for the 30th Annual Meeting of the Institute of Traffic Engineers, it seems appropriate to reflect on the progress and development of the traffic engineering profession and its valuable contributions to the community and our country, and consider what may have prompted the small group of dedicated men to found the Institute, just three decades ago. Certainly we can assume that the safe and convenient movement of people and goods was their primary concern, and to that end they set out to exchange ideas, to experiment, and hopefully to find solutions to the traffic problems that existed and others that were undoubtedly foreseen. As we face the transportation problems that challenge us today, we can feel a deep appreciation for the vision and foresight of our Founders.

The increasing public acceptance and recognition of traffic engineering as an essential element of highway transportation is noted by more efficient use and operation of existing traffic facilities which are providing improved transportation service. Technological advances and the many opportunities to make use of these tools offer a tremendous challenge to the traffic engineer. It is therefore essential that the traffic engineer, with his knowledge and understanding of traffic operations problems and his responsibilities in administration and management, should use these talents along with interest and imagination in research to develop new techniques and new ideas.

The well-balanced technical program of this 30th Annual Meeting offers new ideas in traffic research, planning and operations, discusses progress in many areas of technical development, and presents important accomplishments in traffic engineering. Here is an opportunity to participate in the exchange of knowledge and ideas which cannot help but benefit all members and guests.

Welcome to this—the 30th Annual Meeting of the Institute of Traffic Engineers.

EDWARD G. WETZEL
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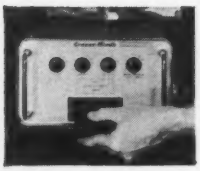

ONE OR MORE PLUG-IN ACCESSORIES expand functions of basic controller, without change in main timer, or addition of relays. Front of each unit has disconnect plug for easy removal.

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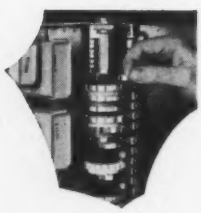
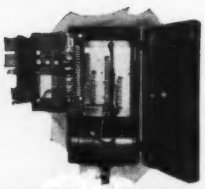


CAMSHAFT CONSTRUCTION reduces number of relays to *minimum* . . . permits a wider range of modifications before resorting to special accessories . . . without changes in timer or wiring.



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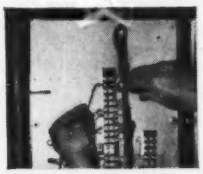

ONE BASIC TIMER with one standard set of wiring handles all jobs. All modifications not made by simple cam adjustment are obtained by plug-in accessories without complicated rewiring.

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The Chicago Bureau of Street Traffic

Prepared by the Bureau of Street Traffic Staff

THE DYNAMIC GROWTH of the Chicago metropolitan area and the ascending automobile ownership trends have increased Chicago traffic problems at a rate far in excess of progress in providing traffic and transportation facilities.

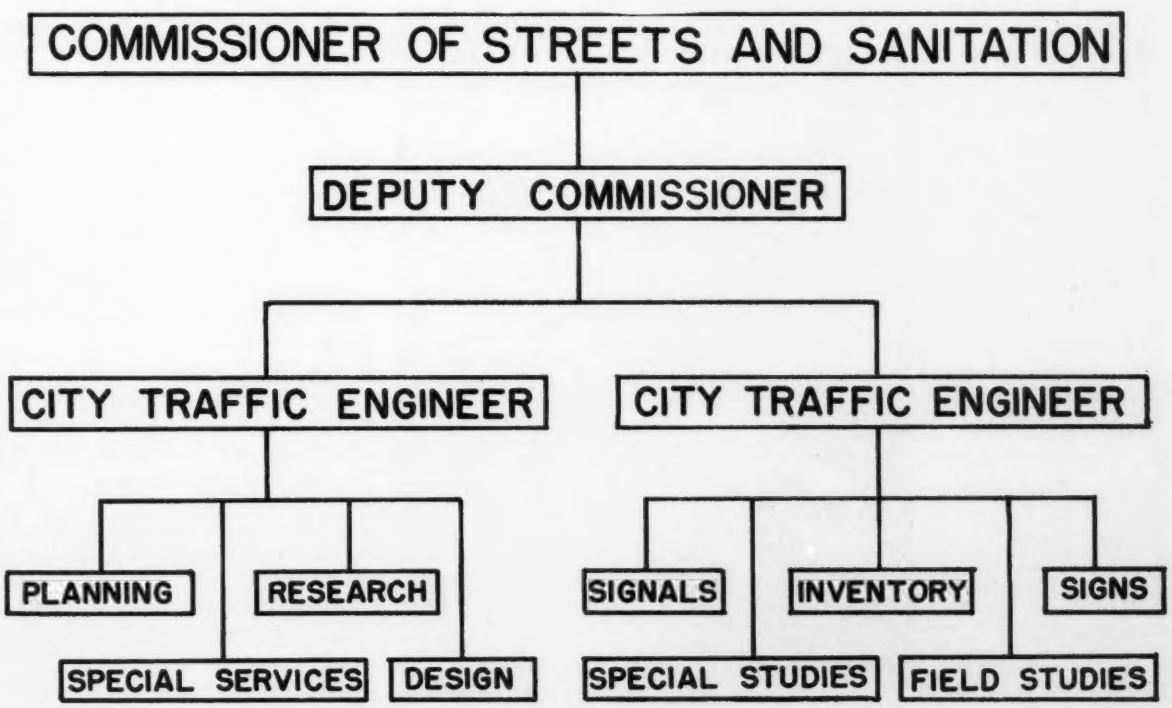
In 1950, with the establishment of the Bureau of Street Traffic, Chicago took its first step toward solving its traffic problems.

The Bureau was organized to handle all phases of traffic engineering—planning, design, research, operations, signing, surveys, and special studies and services. A diagrammatic organization chart is shown in Figure 1. The staff presently includes 30 engineers, 12 draftsmen, 121 traffic servicemen, 176 sign painters and hangers and supervisors, and 19 clerical employees.

Chicago's 3,900 miles of streets, and 37 miles of expressways carrying 20,000,000 vehicle-miles per day, require a vast amount of attention from the Bureau of Street Traffic staff. In 1959, 907 miles of lane lines were painted, 6,371 crosswalks were marked, 39 intersections were signalized, 173 intersections were improved through channelization, 56,103 traffic signs were installed, 41.0 miles of streets were made one-way, 144 miles of arterial street lighting were installed, 41.8 miles of median strip were constructed, 4.4 miles of expressway were opened to traffic, 9 miles of channelization were constructed, 9 miles of streets were throat-widened, 4 miles of streets were widened, 30 miles of streets were resurfaced, 1.5 miles of new streets were built, and 326,000 feet of curb and gutter were installed.

Planning

The Bureau of Street Traffic Planning Section participates in the preparation of long range traffic plans for Chicago. In 1957 the Chicago Plan Commission adopted the City of Chicago Preferential Street System which was the result of joint efforts of the Bureau of Street Traffic and the Plan Commission. The Preferential Street System, a network of major streets, provides the basis for land use planning, urban renewal, and traffic improvement programming.



The Bureau of Street Traffic Organization Chart.

The Planning Section acts as liaison with Chicago's urban renewal and planning agencies. Traffic and parking studies are undertaken for the renewal projects of Chicago Land Clearance Commission, Chicago Housing Authority, and Community Conservation Board. In addition, the Section offers its services to community and private organizations.

The Hyde Park-Kenwood Urban Renewal Project, a 40 million dollar conservation and rehabilitation project currently being executed, includes many traffic improvements which were planned with the guidance of the Bureau of Street Traffic. The objectives of the traffic plan for Hyde Park-Kenwood were the efficient facilitation of traffic movement, the elimination of deleterious through traffic from local streets, and the establishment of suitable land planning units.

The comprehensive development plan for Chicago's central business district contains a traffic plan comprised of local access streets and through traffic ring roads for bypassing trips around the core area. This traffic plan was developed by the Bureau of Street Traffic in cooperation with the Department of City Planning.

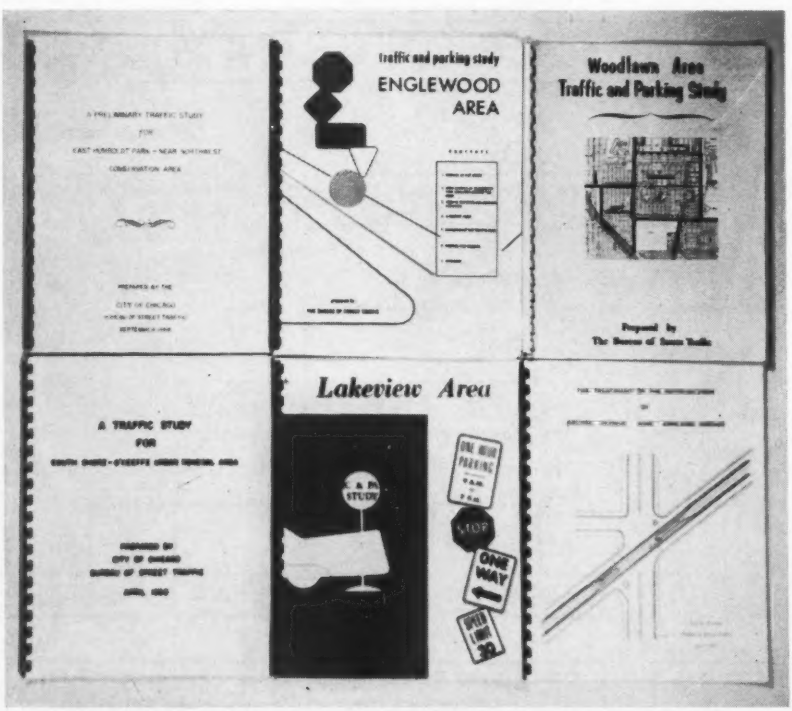
Special traffic planning projects are frequently studied by the Planning Section; proposed street extensions, proposed expressways, proposed street vacations, commercial area studies, and zoning variation applications.

Design

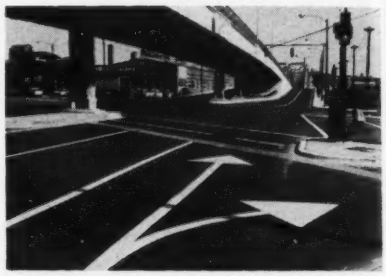
The Bureau of Street Traffic Design Section prepares geometric designs for improvements to preferential streets, reviews expressway designs, and reviews designs prepared by other public agencies. In recent years the Design Section has prepared geometrics for the widening, channelization, and throat widening of many miles of streets. The designers have assisted with plans for several through-lane-overpasses, one of which has been constructed on the southwest side of Chicago. Extensive improvement plans have been designed for Lake Shore Drive. The Damen Avenue extension, the provision of a new street on structure across railroad yards, was designed in cooperation with the Bureau of Street Traffic.

Research

The Bureau of Street Traffic Research Section administrates the annual "Cordon Count" a study which compiles travel data regarding the Central Business District. In addition, the section participates in many special research projects including before and after studies, key station volume counts, time and delay studies, and traffic generation surveys.



Traffic and Parking studies are undertaken for urban renewal projects in Chicago.



A through-lane overpass at Archer and Ashland Avenues on Chicago's southwest side.

The Research Section, in recent years, has undertaken an extensive photography project. Before and after photographs are taken of each traffic improvement, and pictorial studies are made for location surveys.

The Research Section participates in many special research projects.

Special Services

The Special Services Section handles emergencies and special events which require traffic routings or re-routings.

Included in this section is the Traffic Engineering Center, a complex communications center, which has 24 hour radio and telephone contact with patrol units on the street. The Center is equipped to route to proper agencies information regarding emergencies which is received from citizens or city officials.

The City has six traffic patrol trucks on the street following regular routes keeping traffic operations under surveillance and reporting traffic signal outages, hazardous traffic conditions and other impediments so that they can be dealt with promptly by the proper city department. The patrol vehicles are equipped with barricades, signs, flags, lanterns, etc., to assist in emergencies.

The Special Services Section, in conjunction with the Police Department establishes street closings and re-routings for construction, fires, parades, conventions, and other special events.

The Special Services Section includes the Traffic Engineering Center, a complex communications center.

Signals

The Traffic Signal Section locates and designs signalized intersections in accordance with a long-range signalization program.

In 1959, 39 new intersections were signalized, bringing the city total to close to 1900.

A successful radio-controlled signalization system was devised by this section for LaSalle Street, a high volume artery serving the central business district.

Radio signals are also utilized to time relate the entire signal system giving coordinated progressive traffic movement on all streets in the city.

The section is presently studying special walk-wait signals for the central business district. A test installation is installed at the "world's busiest corner," State and Madison Streets.

In 1958 lane control signals were installed on Hollywood Avenue.

In 1958 lane control signals were installed on Hollywood Avenue at the northern terminus of Lake Shore Drive. Research is currently under way preparatory to installing similar systems in other locations.

Signs

The Sign Division, recently located in new and modern headquarters on Chicago's south side, makes and hangs about 35,000 new traffic signs per year. In addition it is charged with the maintenance of signs, painted channelization, lane lines, and crosswalks.

The modern new Chicago Sign Shop is capable of producing 250,000 signs annually.

The new $750,000 City of Chicago Sign Shop, capable of producing 250,000 signs annually, was placed in operation in 1957. Modern equipment for the manufacture of many types of signs has been installed in the new plant.

Field Studies

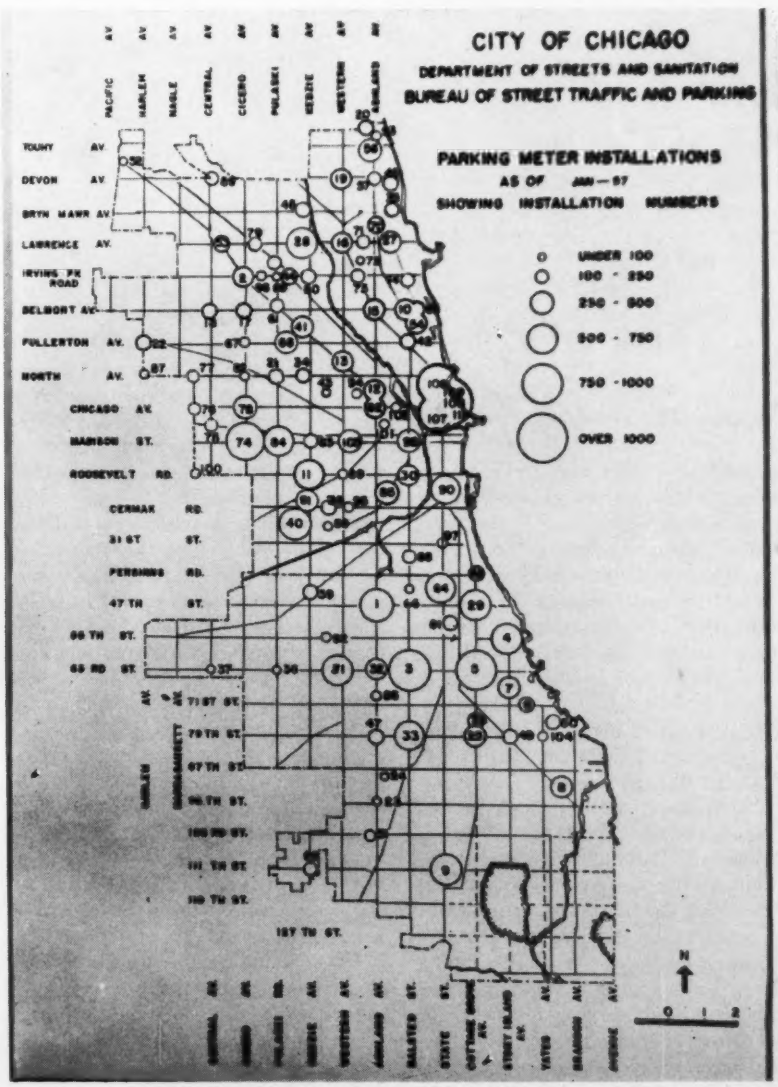
The Field Studies Division compiles and files data on traffic volume counts and traffic accidents. Thirty-six traffic counting field men and 33 traffic counting machines are constantly making volume counts for particular traffic studies or for key station information.

The manpower of the Field Studies Division is available for special assignment to origin-destination or parking surveys as required. Copies of police accident reports are maintained for use in establishing need for signals, stop signs or special geometric designs to improve safety of the street system.

Special Studies

The Special Studies Section investigates and replies to all requests and

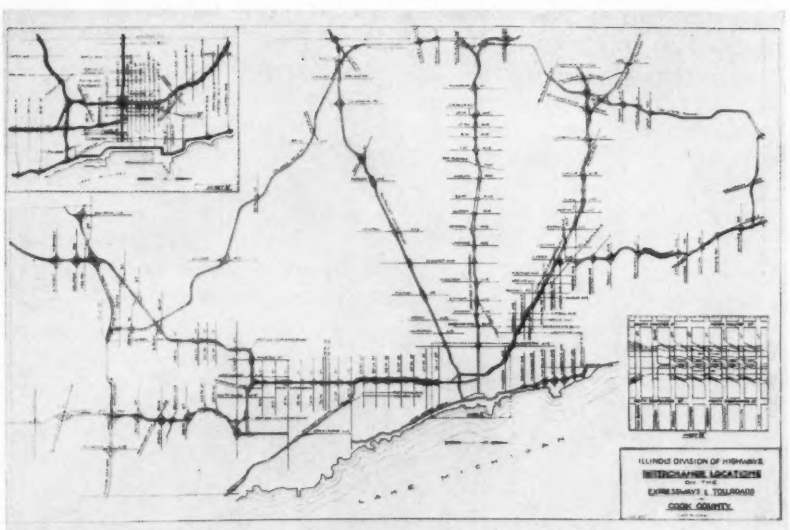
(Continued on page 62)



The Special Studies Section investigates parking meter locations.

The State's Role in Chicago Metropolitan Expressways

Reported by
Illinois Division of Highways



MEMBERS of the Institute of Traffic Engineers who visited Chicago at the time of the 1952 Annual Meeting will immediately recognize that in 1960, the entire Chicago metropolitan area has literally changed its face. Almost every section has undergone a transformation, which includes new housing, new commercial and industrial developments, and of most interest to traffic engineers, new transportation facilities. The State of Illinois is proud of the many roles it has played in these efforts, not the least of which have been the state's activities in the field of urban transportation.

The Illinois Division of Highways, a division of the Department of Public Works and Buildings, is divided for administrative purposes into 10 districts, each district representing a distinct geographical entity. District 10, which comprises all of Cook County, has an Expressways section which has been set up within the framework of the district organization to plan, design and operate the expressways in the Metropolitan Area.

However, no organization can be an island unto itself in so complex an area as this. In almost all phases of highway planning, design, construction and operation, but especially with regard to expressways, the character of the achievements thus far attained is keynoted by the word—*cooperation*.

This cooperation exists formally between the state, Cook County and the City of Chicago. The manner in which this cooperation is effected is best illustrated by the activities of the Chicago Metropolitan Highway Design Committee. This group, made up of the heads of the Highway Departments of the three aforementioned agencies, is responsible for coordinating the planning, design, construction, and to some extent the operation of the expressways in the metropolitan area.

The working groups of the Design Committee are the various sub-committees established to investigate particular facets of highway design and operation. Chief among these is the Traffic Subcommittee whose members are taken from all the participating agencies. This group is responsible for recommending the geometric design of express facilities, the preparation of certain policies relating thereto, and research investigations into the operation and control of traffic on the expressways.

No general description of the metropolitan area's organization would be complete without mention of the impact that the Federal Aid Interstate Highway Program has had, and the influence of the U. S. Bureau of Public Roads. In 1940, it was estimated that $205,000,000 would be required to complete some 62 miles of Chicago's comprehensive superhighway system. Thus far, almost $200,000,000 has been spent or programmed for the Congress Expressway alone. Thus, the F.A.I. program has been the key to both assuring the completion of the system, as well as hastening its progress. A few years ago, total annual expenditures of $20,000,000 in the metropolitan area were considered good. Today, $100,000,000 annually is considered adequate only for the planned facilities and additional amounts are anticipated for future urban expressways.

As indicated previously, the coordination and cooperation of the agencies constructing the expressways has been singularly successful. This coordination is most apparent in the design and construction activities related to the expressway system. The city, county and state have jointly undertaken the planning, design and construction of the Chicago metropolitan expressway system. The respective responsibilities are generally split on lines of cost for each route segment rather than entire specific routes.

The three agencies have completed and opened to traffic sections of Calumet, Edens and Congress Expressways. The design features of the first two named are generally in accordance with

modern expressway standards. Certain features though, which were thought to be appropriate in 1952, are in eight years obsolete. On Calumet and Kingery Expressways median widths, acceleration and deceleration lane geometrics and bridge clearances are not up to 1960 standards. As an example of the difficulties that this can present, the Tri-State Tollway, F.A.I. 294, which is the westerly extension of the Kingery Expressway, has vertical bridge clearances of 15 feet or more. On two occasions in the past year the Calumet Expressway overpass on Kingery Expressway has been damaged by trucks having load heights in excess of the 14'-3" clearance on Kingery, but less than the 15 feet on the Tollway. On both occasions, expensive and complicated repairs have been required, causing great inconvenience to the traveling public because of detour arrangements.

The Edens Expressway design has two deficiencies which have plagued its operation almost since it was opened. The first of these, is the location of the light standards which are 7'-6" off the pavement edge. Not only has there been a high incidence of knockdowns (approximately 50 per year), but the effective width of shoulder is reduced and maintenance problems, (mowing, shoulder stabilization, etc.) are increased. The second deficiency is the presence of many partial interchanges providing only for traffic to and from a single direction. Because of the change in lane use, i.e., the growth of new homes and shopping centers, the traffic patterns envisioned in 1952 have changed radically. The partial interchange thus becomes a focal point of confusion and congestion.

The Congress Expressway, which has been under construction since 1946, will be completed this year. The state's section in the City of Chicago has been opened to traffic for almost 5 years now. In that time, the wisdom of providing adequate weaving sections, a short length of C-D road and split diamond interchanges have all proved sound. Unlike the partial interchanges on Edens, the split diamonds are connected by short sections of frontage road, thus completing access to and egress from the facility.

Another interesting phenomenon not originally envisioned has been the pedestrian-vehicle conflict at cloverleaf interchanges. Where large pedestrian generators such as schools, neighborhood shopping centers, churches, etc., are located such that they generate pedestrian traffic across the expressway, the cloverleaf type interchange invites difficulties.

ILLINOIS DIVISION OF HIGHWAYS
DISTRICT 10

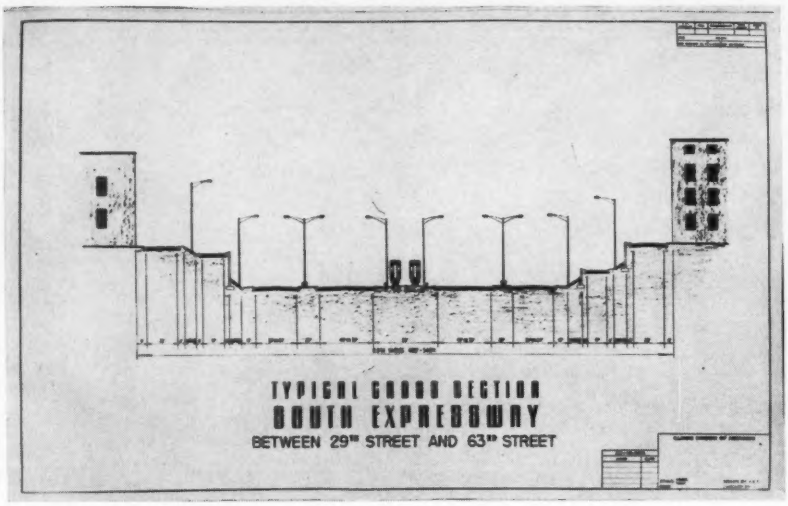
CONGRESS STREET EXPRESSWAY
RAILROADS & HIGHWAY CROSSINGS IN VICINITY OF DESPLAINES AVE., IN FOREST PARK, ILLINOIS

Major facilities presently under construction by the state include the remaining 2¼ miles of Congress Expressway in Oak Park and Forest Park, the Northwest Expressway from the Edens Interchange to Armitage Ave. and the Erie St. Interchange, the South Expressway from 39th Street to 63rd Street, and three major non-expressway projects including the Lake Street C.T.A. rapid transit relocation through Oak Park, the construction of several new bridges over the newly widened Sag Channel and a three-level interchange at West 26th Street, Cicero Avenue (Illinois 50) and Ogden Avenue (U. S. 34). Each of these projects presents complex problems of design and construction.

The Congress Expressway (F.A.I. 90) through Oak Park and Forest Park is unique for several reasons. First, there exists the newly depressed railroad and rapid transit facilities on the South side of the cut. During construction, it was necessary to relocate these railroads a total of four times. Because of the location of the railroads within the right-of-way, it was necessary to utilize center ramps on the expressway. As a result of this design, exceptionally long acceleration (1100 ft.) and deceleration (800 ft.) lanes have been provided to minimize the turbulence that might be expected in the expressway flow because of the unorthodox ramp configuration. This design, while admittedly new to urban area motorists, is a direct antecedent of the railroad depression. This is a small price to pay for the anticipated savings in lives to be realized from the elimination of the at-grade rail crossings—at least 3 per year. There will also be a substantial benefit in time savings as a result of the elimination of the grade crossings.

Construction activities on the Northwest Expressway are somewhat different than those on Congress because for most of its length, the former is on fill in lieu of being depressed. The necessity for providing adequately wide cross street structures is especially critical where the expressway passes over. For this reason many of the underpasses seem extraordinarily wide when related to present street widths. In every case it is anticipated that the street will ultimately be widened so that the extra width of structure is a prudent future investment. Today these extra widths are being utilized for bus turnout areas.

The location of the Northwest Expressway immediately adjacent to the Northwestern Railroad right-of-way has posed many problems. Not the least of these was the necessity to relocate a section of the railroad adjacent to a historically valuable church to provide right-of-way for the expressway. The



temporary relocation of the railroad was also required at the locations where the expressway passes beneath it. But there was a brighter side to the presence of the railroad. In several locations, huge steel plate girders for the highway bridges were transported to the site by rail and placed using railroad cranes.

The section of the South Expressway (F.A.I. 90 and 94) under the construction jurisdiction of the state is at present only at the demolition stage. As yet the engineering problems are at a minimum, but the human problem is just being solved. This human problem, that of relocating thousands of people, has been handled with an absolute minimum of rancor or criticism. Considering that this could have been the sorest point in the entire expressway program, it is a matter of real pride that no fulminating editor has yet found a family huddled in the streets watching a bulldozer obliterate its home.

Of the non-expressway works now going on in the district, the construction of the three-level grade separation on Cicero Avenue at Ogden Avenue is probably the largest single item. Some $8,000,000 will be spent in creating an extremely complex interchange to eliminate the second worst traffic bottleneck in Chicago.

When completed—in about 2 years—it is anticipated that this facility will handle in excess of 80,000 vehicles daily.

The other two major projects consist of increasing the span lengths of bridges over the Sag Channel and relocating the existing C.T.A. Lake Street Rapid Transit at-grade facility to the elevated right-of-way of the Northwestern Railroad.

Those projects for which the state is responsible and which are still in the planning and/or design stage include the South Expressway, the Southwest Expressway (F.A.I. 55), the West Leg of the South Expressway (F.A.I. 57), the Moline Expressway (F.A.I. 80) and the Crosstown Expressway. It is intended that all of these facilities will be in operation within ten years, thus completing the presently proposed comprehensive system. But it is already believed that this system may merely be the backbone of an ultimately far bigger network.

That portion of the South Expressway with which the state is charged will possess the character of an express facility within an express facility. This is due to the fact that because of the great demand (in excess of 200,000 vehicles per day) and the multiplicity of ramps required to handle this volume, it has been decided to construct a continuous collector-distributor roadway from 69th Street to 23rd Street. This requires a roadway cross-section in some locations of 3-4-4-3 (lanes) to provide adequately for traffic. It is anticipated that with access and egress facilities spaced at 1 or 1½ mile intervals between the C-D road and the "express" road, the "express" pavement will handle traffic at volumes and speeds approaching rural figures.

As seems usual in Chicago's Expressway development, the South Expressway will be adjacent to a railroad for most of its length. This will require the relocation of at least one "team" track as well as the future widening of existing narrow viaducts.

The Southwest Expressway is now moving from the planning stage into the design stage. Here some ingenious design and construction methods must be developed because of the presence of *both* a railroad and the Sanitary and Ship Canal adjacent to the expressway. Elaborate detour arrangements are now being developed because of these dual constraints.

The Moline Expressway (F.A.I. 80) represents the least complicated section thus far encountered. Extending in an east-west direction across the southern part of Cook County, only a few populated acres are encountered. This project is also beginning to move into the design stage and should be under construction in a year or two.

The Crosstown Expressway, although not a part of the Interstate System, is a vital and necessary component of the Metropolitan System. It roughly bisects the City of Chicago in a north-south direction. The initial plan for this facility had its northern terminus at the Northwest Expressway and the Southern terminus at the Southwest Expressway. At the present time, there appears to be a need for a more southerly extension, but no definite plan has been arrived at yet.

The foregoing is a general picture of the design, construction and planning activities of the Division of Highways. Let us now look at the traffic operations activities of the state which are of direct and obvious significance to traffic engineers.

In developing the minimum geometric requirements for the Northwest Expressway, it was necessary to provide capacity for more than 7,000 vehicles in the peak direction, to accommodate traffic using two 3-lane roadways at the junction of the Edens Expressway with the Northwest Expressway.

Two reversible lanes were recommended as the answer. They would satisfy the estimated demand with the most economical width of right-of-way and the most economical total area of pavement.

Although certain design and construction details were necessary to provide the reversible lanes with access to and egress from the main pavements, a more perplexing problem confronted the engineers of the Division of Highways responsible for the operation and control of the terminals. These terminals are located within sections of

the expressway having major interchange movements. These sections will serve, as most urban facilities do, three categories of motorists, those wishing to travel beyond the limits of the reversible lanes, those wishing to exit somewhere between terminals and those not certain of what they wish to do.

A system had to be devised to provide information and regulation as to what could be done and when it could be done in a manner easily interpreted by motorists having these different desires.

The system of signals, signs and physical barrier developed for this purpose, although not necessarily new in application, is of interest in design and operational characteristics.

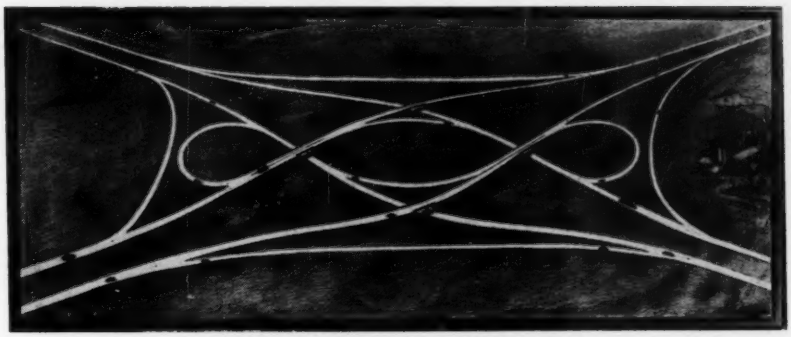
In brief, this system uses the traffic engineer's basic methods of red, yellow and green traffic signals to regulate the usage of lanes on the approaches to the reversible lanes. Green arrow and red X symbols are used to clarify the intent. Signs, dual message in character, supplement the signals by providing information upon which a motorist can determine his course of action well in advance of the point of action.

In instances where these two devices should fail to prevent motorists from entering the reversible lanes when they are closed, a physical barrier providing mechanical means to arrest a moving vehicle and bring it to a halt with minimum effects to either man or machine will be employed.

This system will be operable automatically from a master station located in the office of the Expressway Section of the Division of Highways and from remote control stations located at each terminal of the reversible lanes. Should there be a failure in the operation during any part of the sequence, the control of the lanes will be "frozen" until repairs can be made.

In the general area of operation and control, the Division of Highways, recognizing the need for a coordinated system of law enforcement, traffic surveillance and emergency services and procedures to provide for the high level of operation and control demanded by expressways has taken positive steps to develop such a system.

Where previously the police of the villages through which the expressway passed have had enforcement and accident investigation responsibilities, the State Police have assumed jurisdiction. The only exception to this is the City of Chicago where the city's own police force will retain the enforcement authority. These moves are certain to provide new standards in accident investigation, report forms and techniques and a higher level of law enforcement and efficiency in operation heretofore not experienced.



ILLINOIS DIVISION OF HIGHWAYS
DISTRICT 10

DIRECTIONAL INTERCHANGE
BETWEEN
MOLINE EXPRESSWAY (F.A.I. 80) AND SOUTH EXPRESSWAY (F.A.I. 57)—WEST LEG

To supplement the forces of the Chicago and State Police, the Division of Highways is considering the establishment of an emergency services operation. This operation would consist of twenty-four hour, seven day a week patrol on each of the expressways. The patrols would be conducted by trained men, driving vehicles especially designed and equipped to accomplish the following:

Establish emergency controls, detours, etc.

Report and assist at accident scenes.

Clear pavement of debris and obstructions.

Provide assistance to disabled motorists.

Carry out routine expressway reconnaissance.

To coordinate the efforts of the police with that of the emergency service operation, the use of radio and telephone communications will be employed. The Division of Highways' station will be the command for radio equipped mobile units of the emergency service operation. This command will have direct contact with the police command by private telephone. In the event of a traffic emergency, both police and highway personnel will be directed in a coordinated effort by their respective commands.

With the development of methods with which to take corrective action

VIEW LOOKING NORTH EAST
115th STREET AND SOUTH—EXPRESSWAY
INTERCHANGE

underway, the problem of providing up-to-the-minute detection of operation difficulties and a method of incorporating them both in one organized operation is now under study.

The first positive step in this direction was introduced when a system necessary to provide an emergency detour in the event of a breakdown in the Chicago River bascule bridges on the Congress Expressway was considered. Upon further examination, it was agreed that any study involving the detection and control of traffic due to emergency conditions should be broadened to take in all eventualities.

Since that time, a number of systems including closed-circuit television have been studied. The project is now nearing the research stage with the scope broadened from detection and surveillance to include a study and definition of corrective action which should be employed to alleviate operational difficulties on the expressways.

The Illinois Division of Highways has also taken a new look at traffic maintenance procedures and equipment necessary to meet the demands of the Interstate Highway System. Sign crews must learn new techniques to maintain the Interstate signs. One extremely important technique is the matter of safety while working on these high speed facilities. New signs, barricades and other devices have been employed to protect the workmen as well as the motorists.

With the installation of overhead sign spans in considerable numbers throughout the area, the use of "snorkel" type equipment to supplant catwalks has been studied. Such equipment would eliminate the usual sign trucks as traffic hazards, and improve the aesthetics of the overhead structure.

Other noteworthy aspects of the traffic operation function of the Division of Highways include traffic signal, highway lighting and traffic counter maintenance and a permanent pavement marking program. In District 10, the signal, lighting and counter maintenance are performed on a contract basis. To indicate the scope of this work, in 1959 there were 3263 lamp replacements, 67 light standard replacements, and 54 major repairs to the underground cable on expressways. Traffic counter maintenance has been a real problem over the past two or three years because of the recurring damage to the pressure type detectors. Experimental installations of several other types of detectors are now under study so that a suitable replacement might be obtained.

In the fall of 1958, the Division of Highways contracted for some 75,000 lineal feet of thermo-plastic pavement marking on Congress Expressway. Although certain deficiencies have been recognized, the overall successful results have prompted other contracts totaling in excess of 250,000 lineal feet since that time.

Another function of the traffic engineer which is most important to the urban transportation system is the preparation of a Master Plan. Since 1955, the Chicago Area Transportation Study has been developing the requirements for a new comprehensive system. Originally financed as a joint effort by the city, county, state and Federal governments, the study group is now the Urban Research Section of the Division of Highways. It is the work of this staff that will ultimately determine the face of the metropolitan area and assure its dynamic growth into the next century.

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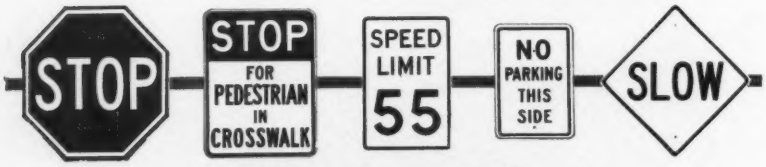

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Transportation Progress in Cook County

By William J. Mortimer
Superintendent of Highways
Cook County, Illinois

Cook County has always been a cross roads for people on the move. Indians on their way to hunt or fight marked the prairies and lake shore with well-worn paths—the Great Sauk Trail, Green Bay Trail, Vincennes Trace, and others—and these in turn were followed by covered wagons in the great westward migration. Red men and wagons, of course, moved in single file and at moderate speed. They had no traffic jams and the most they demanded in the way of roads was a dry surface. If any man had professed to be a traffic engineer in that era he probably would have been put to filling mud holes.

In modern times this vicinity, Cook County including Chicago, has become the country's great center of transportation—railway, airway, waterway and highway. It is an area of concentration, for the main lines of travel are to and from the central business district of the city. This pattern is of particular concern to highway planners, who must deal with large volumes of traffic originating at many points and funneling into a single destination.

Prior to World War 1, Cook County motorists got along with horse and buggy roads. For the most part they connected one suburb with another. Travel into the city was step by step. The system was obsolete, not only because the section line roads with square turns were unsuited to automobiles but also because it was not really a system.

There had been no planned integration of routes to afford through travel in the suburban area or coordination of suburban highways with arterial streets in the city. The need for improvement on a revolutionary scale was apparent. But no one knew exactly what should be done.

In the Cook County Highway Department thinking along this line had been active since the end of the war, and in 1924 the superintendent, Major George A. Quinlan, determined to get the facts by means of a traffic check at selected points in Chicago and out in the county. This type of study, now standard practice, was a brand new idea 36 years ago and experts said it couldn't be done. But with the cooperation of the U. S. Bureau of Public Roads it was done—and the results were valuable.

Using the survey findings, the department in the next year planned 270 projects totaling 838 miles. All have now been completed. Included were the first rural four-lane highways.

The routes selected for this type of improvement were those found to be desired by the large number of users. At the time they were known as "super" highways.

While these four-lane routes are still highly useful, times have changed. In many areas, commercial and residential developments have made them virtually city streets, with much cross traffic and marginal interference, and in comparison with the new expressways, the term "super" has lost its shine.

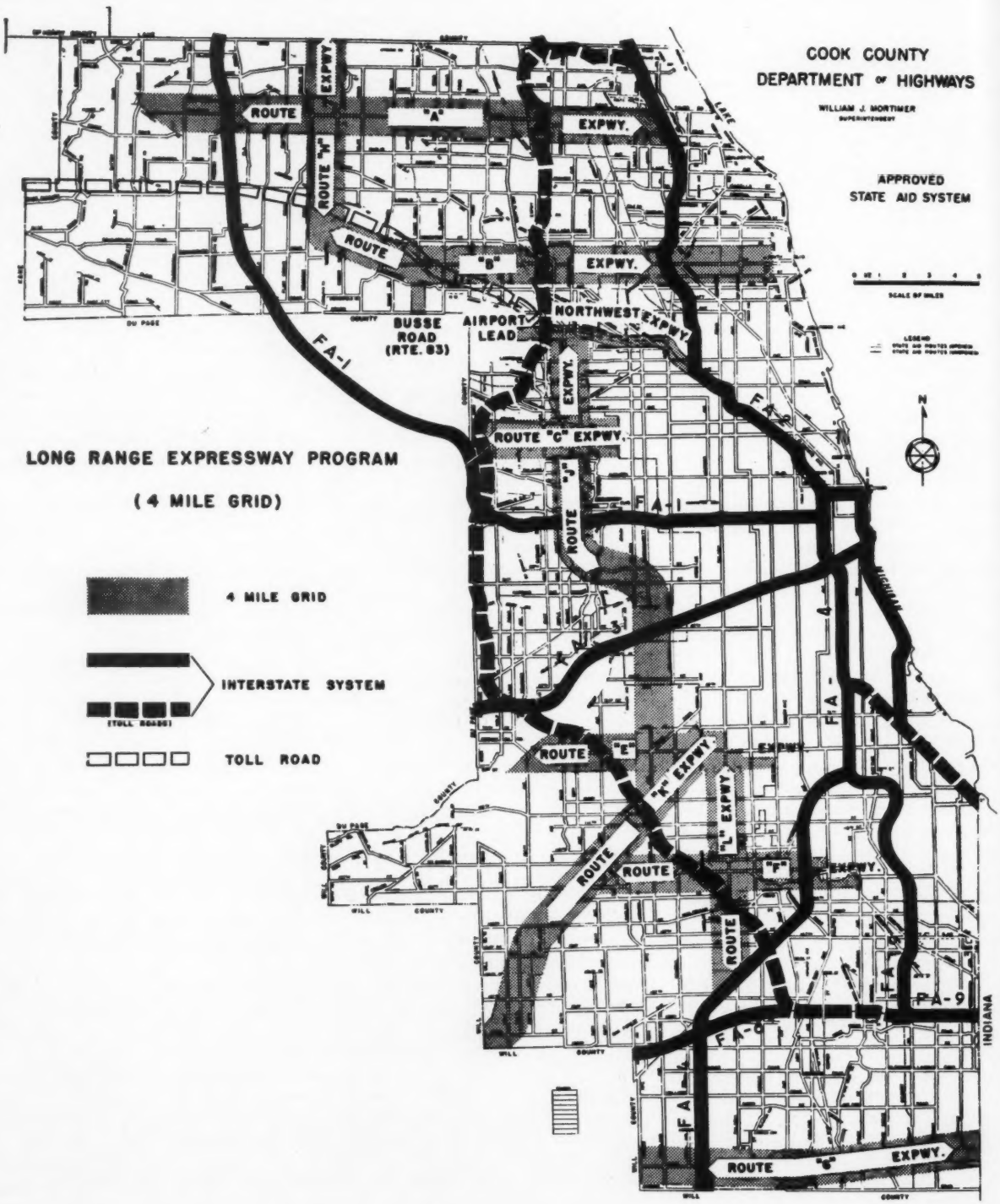
But the principal consideration remains with us today and for the future. Our highway system must be integrated countywide, with the needs of suburbs and the city, both as to main stems and tributary routes, combined in one overall program.

This policy has ruled in planning the comprehensive expressway system, now nearing completion at a cost of approximately one billion dollars. Radiating outward from the central business district of Chicago north, northwest, west, southwest and south, the expressways will serve the entire city and suburban area by providing main lines and also by making use of principal streets and highways as convenient feeders. Five expressways connect directly with Illinois Tollways and all of them will be linked by the Calumet Sky Way with the toll road across Indiana.

Current planning in the department includes a proposal to extend the benefits of limited access highways by means of what we have termed the "four-mile grid" system. This plan contemplates a grid-like pattern of expressway type roads covering the entire city and suburban area. With a grid road every four miles east and west and every four miles north and south, no resident would be more than two miles distant from one of them. The grid roads would not only enhance the usefulness of the expressways, with which they would interchange, but would also expedite local travel.

A start on the grid system is being made this year. The first route selected is Palatine Road from Rohlwing Road to the Des Plaines River, a rapidly growing area in the northwest part of the county. The section to be improved is 6.90 miles in length. Final cost, with Federal aid, is estimated at $6 millions. Programmed for 1960 is work estimated at $2,275,000 including the laying of two lanes of pavement with a median strip. Eventually another lane will be added to each side. All intersections at grade will be eliminated.

While we have had some protests from people who seem to fear that a


COOK COUNTY
DEPARTMENT OF HIGHWAYS
WILLIAM J. MORTIMER
APPROVED
STATE AID SYSTEM
LONG RANGE EXPRESSWAY PROGRAM
(4 MILE GRID)
4 MILE GRID
INTERSTATE SYSTEM
(TOLL ROADS)
TOLL ROAD
ROUTE "A"
EXPWY.
ROUTE "H"
ROUTE "B"
EXPWY.
NORTHWEST EXPWY.
AIRPORT LEAD
BUSSE ROAD (RTE. 83)
FA-1
EXPWY.
ROUTE "C" EXPWY.
ROUTE "J"
FA-2
FA-4
ROUTE "E"
"K" EXPWY
"L" EXPWY
ROUTE
ROUTE
"F"
EXPWY.
ROUTE
FA-9
FA-6
INDIANA
ROUTE "G" EXPWY.
DU PAGE COUNTY
WILL COUNTY
LAKE COUNTY
N

grid road would be undesirable in a residential neighborhood, we had also many favorable comments. It is proposed that within the city the grid roads be placed in alleys and elevated on cantilever supports. Space beneath the structure would be available for parking cars, a matter of importance by itself. Realty experts also foresee the grids as an influence in rehabilitating rundown areas of the city.

While highways are the primary business of this department, we see the objective of our service to the public in terms of "transportation." Highways and streets alone cannot handle the 1,675,000 persons who come into the loop every week day. The 1959 count showed 533,288 riding in private cars. The others used suburban trains, elevated, subway and buses. It was significant that private cars brought an average of only 1.5 passengers per car.

JUNCTION OF EDENS EXPRESSWAY AND NORTHWEST EXPRESSWAY—which will be completed this year, is complicated by railroad and arterial street crossing which necessitated a tri-level structure. Loop buildings are in background.

INTERCHANGE—at Congress Expressway and 25th Avenue in suburban Maywood, west of Chicago.

So if we are to move this army of daily travelers with comfort, convenience and reasonable speed, we must coordinate highways with mass transit. This has already been done in Congress Expressway, where tracks of the Chicago Transit Authority occupy the median strip between the Loop and Des Plaines Avenue, a distance of nine miles. Similar space for tracks has been planned in Northwest and South Route Expressways.

The advantage of rail transit in respect to handling the crowd is readily apparent. Congress Expressway has four lanes in each direction and the designed capacity per lane at 60 m.p.h. is 1,500 vehicles an hour, a total of 6,000 for the four lanes. At the observed ratio of 1.5 passengers per car, automobiles will transport 9,000 an hour. The CTA can carry 40,000 an hour. Furthermore, CTA riders avoid the bother and expense of loop parking.

While many CTA patrons ride buses to the rails, others find it more convenient to drive to a station, particularly terminals, park there and take the train to town. In anticipation of this arrangement finding favor with residents of the far west side and the western suburbs, a large public parking lot has been provided at the Congress Expressway terminal in Forest Park.

The same auto-train combination is practical throughout the suburban area. At one time a commuter had to live within walking distance of the railroad station. Now, with better roads he

INTERCHANGES—between Tri-State Tollway, Northwest Expressway and O'Hare Airport Lead form complex pattern near Chicago's International Airport.

RECENTLY COMPLETED—southward extension of Edens Expressway in northwest section of Chicago.

TYPICAL "RUMBLER" INSTALLATION — designed to alert drivers to heed "Stop" signs.

can live some distance from the station and have his wife drive him over in a few minutes. As evidence that people like this arrangement, all of the 21 suburbs incorporated in Cook County since World War II are located away from railroad lines.

However, we have not ruled out the commuter trains as factors in overall, best-use transportation planning. A considerable number of people will continue to find them most convenient and railroads, like the CTA lines, will play an important part in supplementing the expressways.

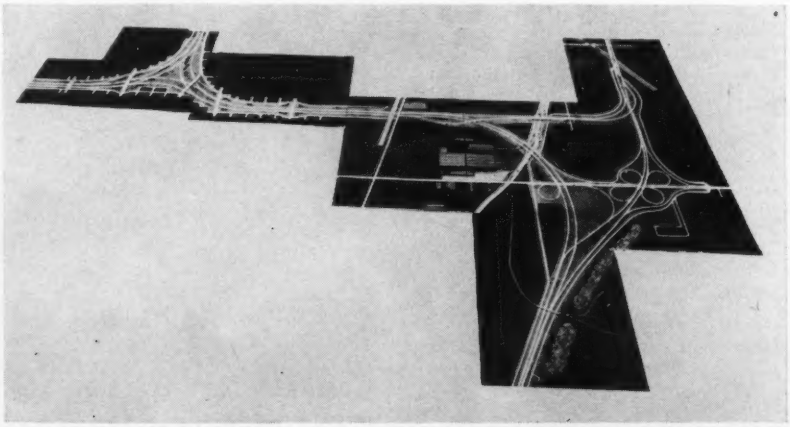
While this department's main effort since the end of World War II has been the expressway program, which it shares equally with the state, City of Chicago and Federal government, there has of necessity been much work done on non-expressway, or primary, roads. This has been not merely maintenance, but also improvements in the interests of traffic efficiency and safety. One such project was a four-lane bridge 558 feet in length carrying Torrence Avenue, a heavily traveled route in the south end of the county, over the tracks of three railroads, eliminating a grade crossing that had been the scene of numerous accidents and frequent traffic delays. Another structure 492 feet in length, with earth fill approaches bringing the total project to half a mile, was built by the county to extend 31st Street from Cicero Avenue to Kostner Avenue, in Chicago.

A new idea developed in this department in the last five years is a special treatment at stop sign approaches to bring drivers to attention. We call it "rumbler" pavement. The application is a coating of screened slag spread over liquid asphalt and rolled in firm. It extends the full width of the approach lane 300 feet back from the intersection. When tires roll onto the strip, an audible rumble is produced, and an inattentive driver, or one unfamiliar with the road, is aroused for action.

We have found driver performance much improved at rumbler locations. Previously, a survey by the department's traffic engineering bureau, which checked 58,732 vehicles at 66 stop signs, found disobedience as high as 62 per cent. Checks at the same locations after rumblering showed the dangerous non-stop completely eliminated in many instances and the chance-taking rolling stops greatly reduced.

Although the rumbler is primarily for safety, we have found it to be also an effective aid in stopping and starting under wintry conditions. A further advantage has been noted when salt is spread to remove snow and ice. The cuplike spaces between the slag particles retain the salt and thawing is

KING-SIZE BEAMS—six feet in depth and 119 to 124 feet in length, are required for westbound O'Hare Airport Lead crossing over Northwest Expressway and Des Plaines River.



MODEL—of bifunicular interchanges in South Route Expressway in vicinity of Lake Calumet Harbor.

considerably faster than on smooth pavement.

Articles about rumblering in the Department's monthly publication *Cook County Highways* have been widely reprinted and we have had a great many inquiries for the specifications from state, county and city agencies. Several have come from Europe and one of the latest from Australia.

Each year the county carries out a program of resurfacing amounting to about 175 miles of two-lane road. At the time of resurfacing we also widen roads that are dangerously narrow for modern traffic and where justified by use we add two lanes, frequently with a median strip and left turn bays. The primary road program also includes numerous bridges, storm sewers, intersection improvements, curbs and gutters and similar work.

Many of these older roads, however, have served their time. They were built in the road boom after World War I and they have just naturally worn out, from surface down to the base. This year we came to the decision to stop putting patch upon patch and to begin a program of reconstruction from the ground up.

In the last year the department has tested two new types of base binder—liquid sulfonate and fly ash. Both have performed satisfactorily and their low cost and speed in application seem to recommend them for economy in rebuilding secondary roads.

Although completion of the priority system of expressways will bring us to the end of a definite stage of construction, the future will demand continued large scale planning and, in due course, further building of highway facilities. The ground work belongs to our Division of Traffic Engineering. This unit has a permanent personnel of 20 located in the department headquarters and a field traffic check force ranging up to 75 or 80 in the busy summer season. Many of these temporaries are college students employed during their vacations.

Traffic on all expressway routes is counted constantly with machines, and other checks, both machine and manual, are made throughout the area as the basis for work to be programmed the following year.

In addition, the division has made numerous special surveys. One of these was the first study to be made anywhere of the influence of an expressway on parallel roads. Published in book form, it has proved to be of interest to highway planners and engineering schools throughout the country.

The division in recent years has conducted a number of interview projects, both at roadside and door to door, seeking to learn why people select a particular mode of travel, their origins, destinations, purpose of trips and the like.

For some years we have made volume counts of traffic on the Memorial Day, July 4th and Labor Day holidays. This year it was decided that while these findings have value they are not easily analyzed, and so the division on the July 4 weekend set up an interview zone on Rand Road, which leads into the Northeastern Illinois lake resort area. The results were more illuminating than mere volume counts and the practice will be followed on other principal holidays.

In addition to the basic activities of the Traffic Engineering Division we have established an Advanced Planning Unit. This, I believe, is an altogether new idea. The three men assigned to it—a civil engineer, an engineer with a master's degree in business administration and a traffic engineer—have been given complete freedom to think ahead—even to dream. In fact, I told them that if they didn't come up with some ideas that get a laugh, I would think they had fallen down on the job.

Although in service only six months, the advanced planners have made a good score. They haven't designed an expressway suspended with sky hooks, but they have on several occasions gone into neighborhoods where residents were much concerned over highway problems and diplomatically have brought about good feeling—and more than that have developed plans that suited both the people and the department.

SUPERINTENDENT WILLIAM J. MORTIMER—meets with new advanced planning and programming bureau. Richard Kanak (Jun. Mem, ITE), left, is traffic engineer in unit.

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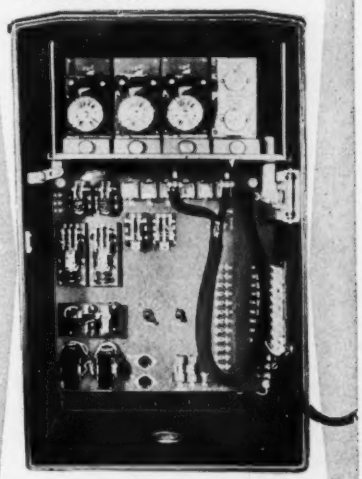

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Chicago Expressways

By George De Ment
Commissioner of Public Works
City of Chicago

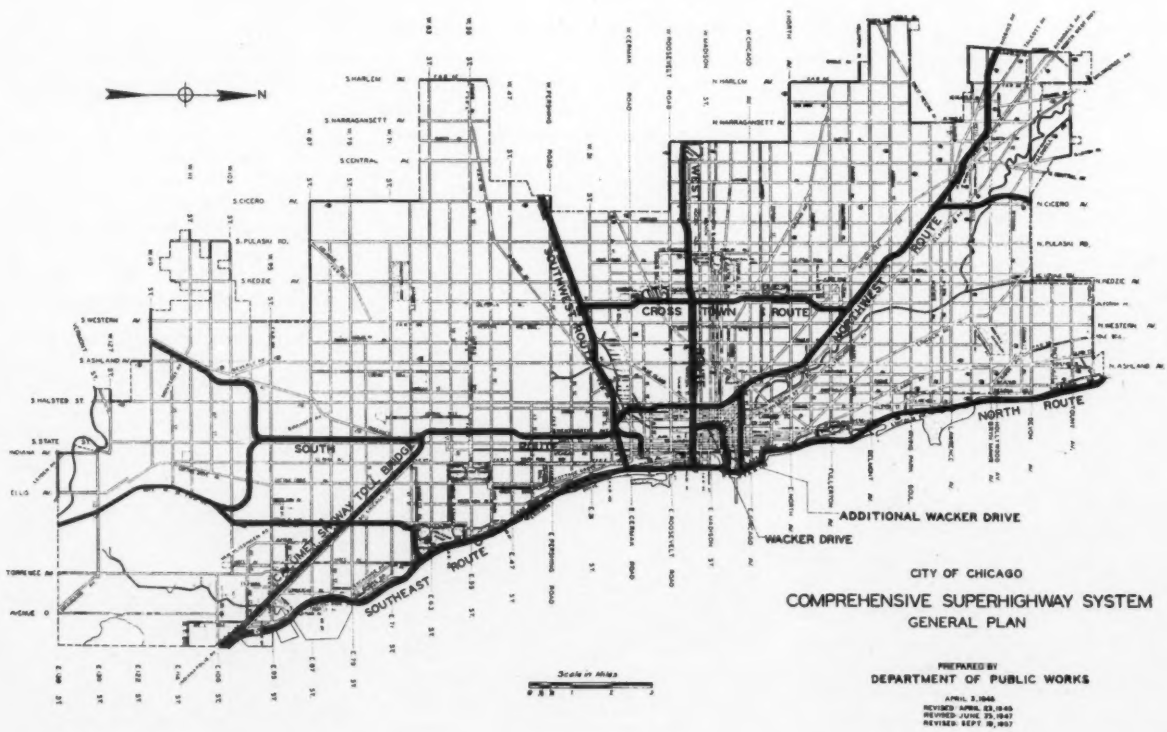
NOT TOO MANY YEARS AGO when horseless carriages began multiplying in the streets of Chicago like rabbits, the city leaders concluded that the situation was swiftly developing into that metropolitan malady called, "traffic congestion," and that drastic highway engineering therapy was necessary to prevent the city from being choked to death by the ubiquitous motor cars in its horse and buggy-era streets. So, they started by widening some streets, lengthening others, creating new ones and by creating a host of traffic laws. They helped, but not much; traffic breathing became more labored, the whites of traffic policemen's eyes were showing and traffic whistles were at a premium.

At this climactic and ominous moment the situation was quickly surveyed and some top engineers were put to work. They labored quietly, but long and hard, burned much midnight oil to prepare a Comprehensive Superhighway System for the City of Chicago.

It was a system embracing eight distinct routes and consisted of 67 miles of the most modern of expressways—connecting with major routes of travel beyond the urban limits.

It consisted of a network of modern and up-to-the-minute routes so located as to serve all sides of the city—the north, the south, the west, the northwest, southwest and the southeast. Skirting the shore of the lake from the city's southern limits to its northern extremity, is the famous Outer Drive, about 20 miles of renowned beauty and utility, through parks and along the southern hem of the lake, a highway carrying in excess of 130,000 vehicles daily.

The 67-mile System plan won city council approval in 1940, a plan which has experienced frequent revisions since, but whose general or main alignment routes have remained unchanged. However, due to revisions, the original 67 miles have been extended to 83.8 miles. It is a system resulting not only from the experience and technical wisdom of top engineers and consultants, but also from suggestions and proposals submitted at numberless public



hearings, city council committee meetings and civic group meetings.

To Cost Nearly a Billion

The 83.8 miles of super-expressway will cost over one billion dollars.

By agreement, the City of Chicago, County of Cook and State of Illinois planned to share the costs equally with the state using Federal funds for a portion of its share. Since the 1956 enactment providing a National System of Interstate Highways, the Federal government will provide 90% of the funds for the bulk of this system and the city, county and state will provide the balance.

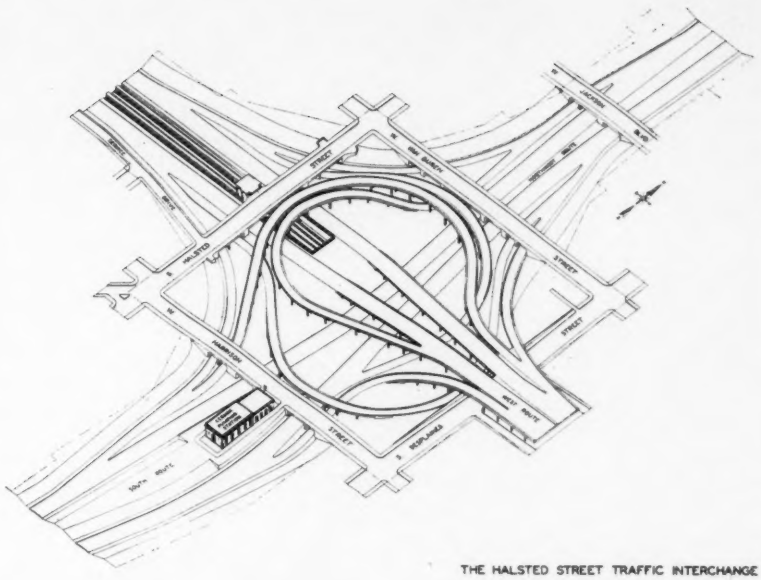
Funds for the program, including costs of engineering, right-of-way, land clearance and construction are obtained from motor fuel taxes, highway bond issues and federal grants.

The Comprehensive Superhighway System of 83.8 miles embraces the following routes in Chicago:

Route	*Miles*	*Cost*
North	3.5	$ 35,000,000
Northwest	16.3	219,000,000
West	8.0	106,000,000
Southwest	7.0	70,000,000
South	21.5	300,000,000
Southeast	11.5	140,000,000
Crosstown	7.5	50,000,000
Wacker Dr. Ext.	0.7	14,000,000
Addit. Wacker Dr.	0.3	7,000,000
Calumet Skyway	7.5	101,000,000
	83.8	$1,042,000,000

Of the above named routes, the Wacker Drive Extension has been completed; all but about one mile of the West Route is completed in the city; work is progressing swiftly on the Northwest Route, with completion-target date set for October, 1960; clearing of right-of-way is nearly completed for the South Route, and five contracts are under construction; the North Route, an extension of the Lake Shore Drive, has been extended about three-quarters of a mile; and the city council has approved the ordinance establishing the alignment of the Southwest Route.

WACKER DRIVE EXTENSION — Looking north from Jackson Boulevard.



THE HALSTED STREET TRAFFIC INTERCHANGE

The Wacker Drive Route is unique in that it is a double-decked expressway. Its upper level consists of three lanes in each direction; the lower level, of two semi-express lanes in each direction, with service lanes for adjacent property. Ramps provide the link between the upper and lower levels. The Drive makes a juncture with the West Route via a compact, but fully adequate traffic interchange, and handles the major portion of traffic moving to and from the central business district, internationally known as "The Loop."

The North Route, an extension of Lake Shore Drive, was extended three-quarters of a mile from Foster Avenue to Hollywood Avenue, with additional outlets at Bryn Mawr and at Hollywood Avenue to alleviate the previous bottleneck at Foster Avenue.

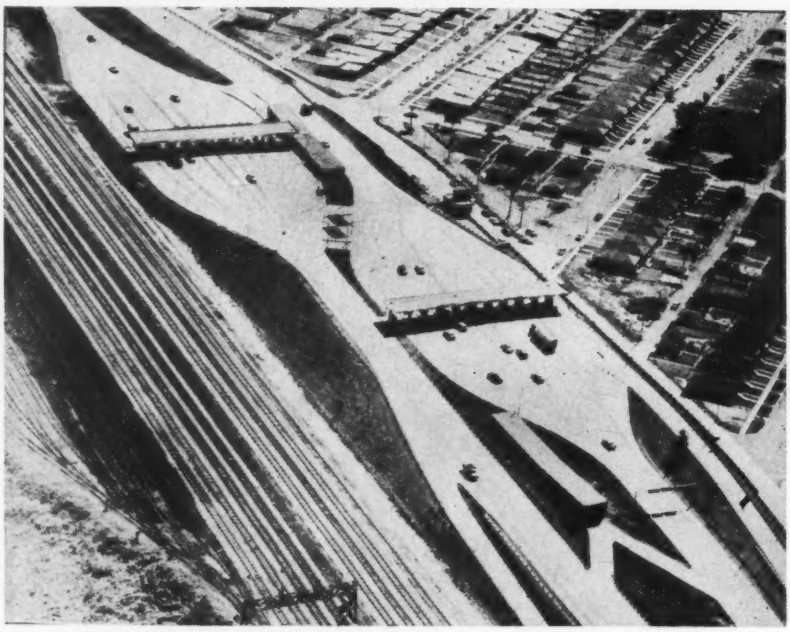
The Northwest Route, when completed, will be a vital route between the Loop and Chicago-O'Hare International Airport, now being developed as a great intercontinental aviation center. In addition to the four 12-foot traffic lanes in each direction, provision has been made for two 12-foot reversible lanes from the Erie Street Interchange on the south to Kostner Avenue on the north.

Depressed Expressways

The major portion of our 83.8-mile superhighway system is to be constructed in depression. Where conditions demand, we construct sections on embankment or elevation. Depressed sections average 14 feet below existing grade; embankments of fill rise about 14 feet above grade; elevated sections of steel structure also rise about 14 feet above grade.

By depressing highways, engineers achieve that free and steady flow of traffic so necessary in a crowded city, unhampered by cross traffic, turning movements, or stop and go lights. Cross traffic is accommodated on overpass bridges, constructed of steel spans resting on reinforced concrete piers and substructures sunk to varying depths, dependent on soil conditions. Architecturally, our overpasses are of simple yet dignified design, mingling graceful lines with utility. Attractive aluminum railings at edges of sidewalks complete a distinctive ensemble.

Depressing of the highways also affords opportunity for attractive landscaping, the long sweeping slopes being sodded and planted with shrubbery and trees. Tall, slender light poles add a graceful touch.



CALUMET SKYWAY TOLL PLAZA—Serving 11 lanes of traffic in each direction.

Rapid Transit Innovation

A predominant feature of our system of expressways—and a world innovation—is that which utilizes the median strip for mass rapid transit facilities. In this area, tracks are laid for rapid transit electric trains, and stations are built at convenient locations along the route. The station facilities consist of a station house, passenger ramp and loading platform. One station house is located at opposite ends of a loading platform, with ramps connecting the platform and station house. Entrance to a station house is from an overpass bridge.

Our West Route, whose roadways have been in use since 1958, is fully equipped with stations, tracks and rapid transit trains.

The service afforded by this line is an extension to the West of our Northwest Side Subway that previously terminated at the Southwest corner of the Central Business District. Since this rapid transit line operates within and along the depressed expressway, it has been termed an "open-cut subway."

CALUMET SKYWAY TOLL BRIDGE—Showing south bound traffic leaving toll gate, north bound traffic entering toll gate.

Planning of the West Route was actually started back in 1913, when a street was dedicated in this location through the central part of the business district. We like to point to the construction of the Post Office building for the City of Chicago as a classic example of long range planning. In the construction of this building in 1933, roadways were provided through the building in an east and west direction for a future expressway. Remember this was in 1933, and actual construction on the West Route started in December of 1949 when the drainage system for the expressway was started.

The Calumet Skyway Toll Bridge, completed in April, 1958, is the final link in the tollway stretching from New York to Chicago, carrying traffic from the connection with the Indiana Toll Road to the city's south side, and by 1962 to a connection with the South Route Expressway, thus enabling motorists to travel 837 miles from New York to Chicago without encountering a traffic light. After completion of the South Route connection, the Skyway will be a bridge, not only over the Calumet River, but linking the Eastern Tollways with Chicago's total expressway system.

The entire project was constructed by the Department of Public Works, City of Chicago, with the services of DeLeuw, Cather & Company acting as coordinating engineers, and seven other consultants as Section Engineers who did the detail designing and supervision of construction.

There were some outstanding features incorporated in the engineering and construction of this facility. One unusual feature of the Skyway was the design of the Stony Island Avenue entrance and exit ramps, where it was necessary to span multiple tracks and roadways to provide vertical railroad clearance of 22 and 23 feet. The plans provided for long-span deck girders framing into "hammer-head" single-column supports, with braced twin-column steel piers to stabilize the structure.

Because this facility was built with dispatch to high engineering design standards, and with due consideration to esthetics, the Illinois Road Builders Association presented the City of Chicago with an award in recognition of an outstanding achievement in the "application of modern engineering techniques which will serve to rank this

project among the finest facilities of its kind constructed anywhere in the world." In April, 1958, the Calumet Skyway Toll Bridge took its place among the many contributions to Chicago made by engineers.

Interchange and Roadways

The main roadways of our system consist of three and four 12-foot traffic lanes in each direction. The pavements are of 10-inch concrete on granular base. On the South Route, between 27th and 63rd Street, a collector system of roadways with seven 12-foot traffic lanes in each direction has been provided.

Entrance and exit lanes located at controlled locations afford connections with the main roadways. Where necessary, service drives to abutting properties are also provided.

Interchange with existing streets is attained via parallel ramps in most areas. Special loop interchanges are provided at intersections of superhighway routes. We have two of these on the West Route, one in the western edge of the loop, which joins up with Wacker Drive, and another where the West Route, South Route and Northwest Route make a junction. This latter interchange may well become "the busiest crossroads" in the world, inasmuch as projected traffic volumes indicate the interchange may handle up to 200,000 vehicles in a 24-hour period.

The interchange between the West Route and Wacker Drive presently accommodates 90,000 vehicles daily, of which 20,000 use the curved ramps.

Drainage

Drainage for those portions of the superhighway system, where the roadway is at an elevation lower than the existing city sewers, is provided by a completely separate drainage system with pumping stations where necessary. The present rules of design specify the use of a storm of 50-year frequency. All of these storm water pumping stations discharge either directly to the Chicago River or into major new trunk sewers at points close to their outlet to the river. The West Route was originally designed on the basis of a storm of 10-year frequency. Design of the Northwest Route and South Route, which intersect the West Route, have been based upon a 50-year storm and the Roosevelt Road Pumping Station, which is near the Halsted Street interchange at the junction of the three routes, is being interconnected with the West Route Pumping Station so as to increase the drainage capacity of the West Route to handle the runoff from a storm of 50-year frequency.

CONGRESS EXPRESSWAY—at Halsted Street Interchange. Note portal through U. S. Post Office in center background.

Elevated portions of the superhighways which discharge into existing sewer systems at selected points are generally designed for a storm of 10-year frequency, since the existing outlet sewers of the City of Chicago are designed only for a 5 to 10 year frequency storm.

Design Speed

Expressways are designed and constructed for an assumed design speed of 60-mph within the city.

Entrance and exit ramps are designed for a vehicle to enter or leave the outside lane of the express roadway at 45 miles per hour.

Benefits of Modern System

The estimated benefits to be derived from our system of super-expressways are as follows:

1. 450,000 vehicles travelling daily in excess of five billion vehicle miles will use the system annually.

2. The system will reduce congestion

CONGRESS EXPRESSWAY—Viewed eastward from California Avenue. Rapid transit station in foreground has connecting ramp to major street overpass.

CLOSE-UP VIEW—of south cloverleaf of Wells Street Plaza, complete with landscaping.

and absorb a substantial part of the anticipated increase in motor vehicles.

3. The time saving due to high speed and elimination of cross traffic is estimated at 40 million man hours annually.

4. Elimination of stops and starts will produce more efficient car operation and save millions of dollars in fuel annually.

5. Built-in safety is estimated to reduce fatalities substantially per year and reduce injuries by 4,000, in comparison with the same travel on the arterial system in Chicago.

6. Mass rapid transit riders will face less congestion on surface streets and benefit by new express bus service.

7. Value of property is enhanced by taking through traffic off local streets.

8. The creation of modern traffic facilities coordinated with other public improvements provides powerful stimulus for redevelopment of old neighborhoods and communities.

Design Committee

The geometrics for our 83.8-mile superhighway system are based on traffic demands and design criteria for expressways in the Chicago metropolitan area. Within the city, the design is based on the average (daily) hourly maximum traffic volume.

With this as a basis, the geometrics are developed under the guidance of the Highway Design Committee, consisting of representatives of the various construction agencies from the State of Illinois, Cook County, the City of Chicago and Bureau of Public Roads.

The committee establishes basic dimensions, number of lanes, location and type of interchange, intersections, speeds, pavements, drainage, ramps, medians, etc.

After the standards have been developed, detailed plans and specifications are prepared by the particular construction agency involved; state, city or county. Before acceptance, the other agencies concur.

It should be noted, too, that rapid transit representatives are called in whenever transit facilities affect the design of the expressways.

Once plans and specifications have been agreed upon, the participating agencies take steps toward the letting of contracts. Certain sections of each route of the Comprehensive System are apportioned to each of the construction agencies. This section assignment includes engineering, acquisition of right-of-way, clearing of right-of-way and construction.

A transportation study for the Chicago metropolitan area is now in progress, from which new and additional data will be available for future projections of highway needs and types. This study will be of great benefit to the designers in their future work.

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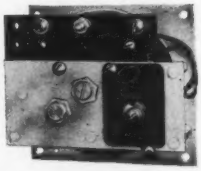

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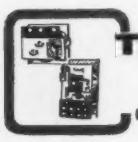

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Plan Major Traffic Realignment for Grant Park

By Randall H. Cooper
Executive Director
Chicago Central Area Committee

Chicago Central Area Committee represents the principal business interests of downtown Chicago and the best interests of all the people in working for the strengthening and improvement of the Central Area. The Committee works both with public and private organizations to study the problems of the Central Area and to help bring about their solutions.

FOR MORE LEISURE—Under Chicago Central Area Committee proposals, new promenades could be created through imaginative treatment of the landscaped areas of Grant Park on the Michigan Avenue frontage. Above is an artist's conception of how the promenades would look. The view is north toward the Prudential building. Retaining and improving the trees, such treatment could include more colorful paving of new strolling areas and the use of water displays, statuary and outdoor exhibits.

GRANT PARK is a showplace of America, a unique beauty spot on the Great Lakes and the pride of the City of Chicago.

This magnificent parkland and adjoining Burnham Park on the shore of Lake Michigan comprise a truly dramatic setting for the world-famous Chicago skyline. No city presents a more glorious gateway to the world.

Such a beautiful asset can be no accident, and indeed Grant Park is not. The genius of early generations conceived development of the parks where the waters of Lake Michigan lapped, and every succeeding generation has contributed to perfecting them.

There is great material as well as aesthetic value in these parks, as they help create the environment that makes Chicago's central area attractive to new investment and ever-increasing commercial activity.

Continuing improvement is needed, however, to preserve their high social and economic purposes. Changing conditions require advance planning to overcome current problems, to preserve and enhance Chicago's greatest single recreational and cultural center.

At present, the need for recreational facilities becomes greater daily with the expansion of population, the growth of new neighborhoods in and around Chicago, the increase of business and pleasure visitors to the city.

Plans are evolving today to provide easier access to Grant Park for all the people of Chicago and for Chicago's visitors, to establish new centers of recreation and culture and beauty for their enjoyment.

Chicago Central Area Committee recently made public a program for improvement of the parks.

Some of the proposals are new and originated with the Central Area Committee and its consultants. Other proposals originated with the City of Chicago and the Chicago Park District.

The Central Area Committee's program for the first time brings all the proposals together.

It is suggested that financing be accomplished by a combination of user revenues, highway money, park funds and private contributions expended over a period of years.

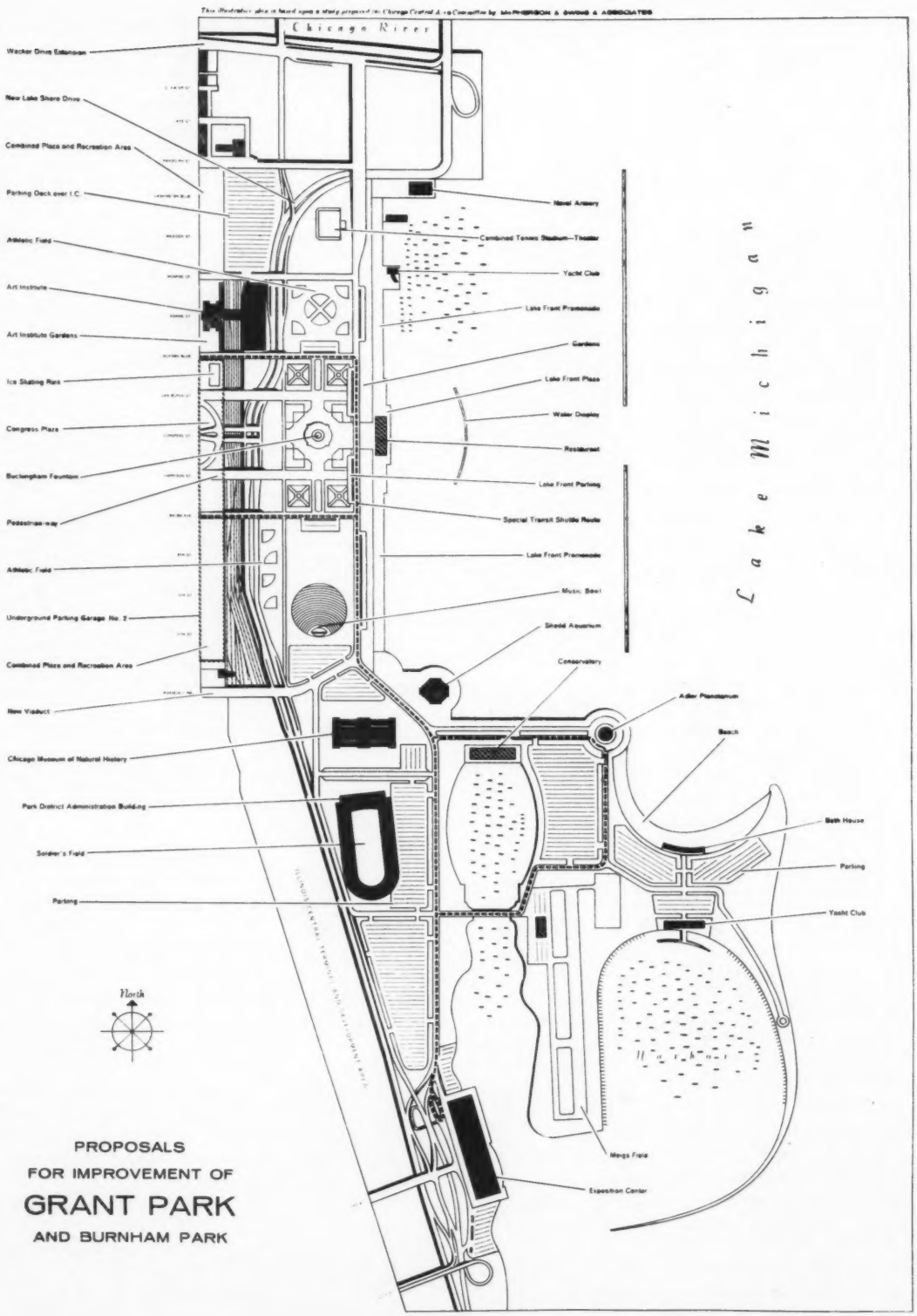
Long-Range Planning

The ultimate purpose of this planning is the greater benefit of all the people—which is the heart and soul of Grant Park and the spirit of the men who created it.

The first objective of such planning should be development of an overall plan that will preserve the original grandeur and beauty of the basic park design.

In such a plan there should be provision for the orderly development of aesthetic and recreational facilities and cultural centers.

Thus, the parkland's basic character will be maintained and the parks made more useful by:


Chicago River
Wacker Drive Extension
New Lake Shore Drive
Combined Plaza and Recreation Area
Parking Deck over I.C.
Athletic Field
Art Institute
Art Institute Gardens
Ice Skating Rink
Congress Plaza
Buckingham Fountain
Pedestrian-way
Athletic Field
Underground Parking Garage No. 2
Combined Plaza and Recreation Area
New Viaduct
Chicago Museum of Natural History
Park District Administration Building
Soldier's Field
Parking
Naval Armory
Combined Tennis Stadium—Theater
Yacht Club
Lake Front Promenade
Gardens
Lake Front Plaza
Water Display
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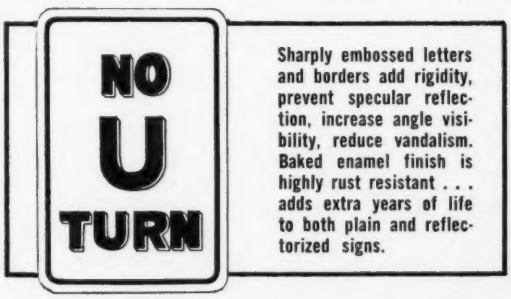

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Lake Shore Drive Relocation

Lake Michigan is the great natural asset of Chicago and the focus of Grant Park. The park's development should have the purpose of bringing the lake closer to the people, of making it more accessible and more enjoyable to more people than ever before.

In the "Development Plan for the Central Area of Chicago," the city's traffic engineers envision relocation of Lake Shore Drive in Grant Park, estimated to cost $17 million.

Presently Lake Shore Drive, one of the nation's first limited access highways, sweeps through the park along the shore of the lake.

On one hand the motorist is presented with a beautiful view of this immense freshwater body, sparkling and blue in the sun.

On the other hand, he has an equally beautiful view of lush greenery, vast expanses of lawn, rows of shrubbery, flowers and leafy trees gently swaying in the breeze.

But Lake Shore Drive is essentially a high volume traffic artery.

As such it forms a barrier between Grant Park, the people and Lake Michigan. The citizen bent on rest and relaxation hesitates to brave odorous, threatening waves of traffic to reach the lakeshore.

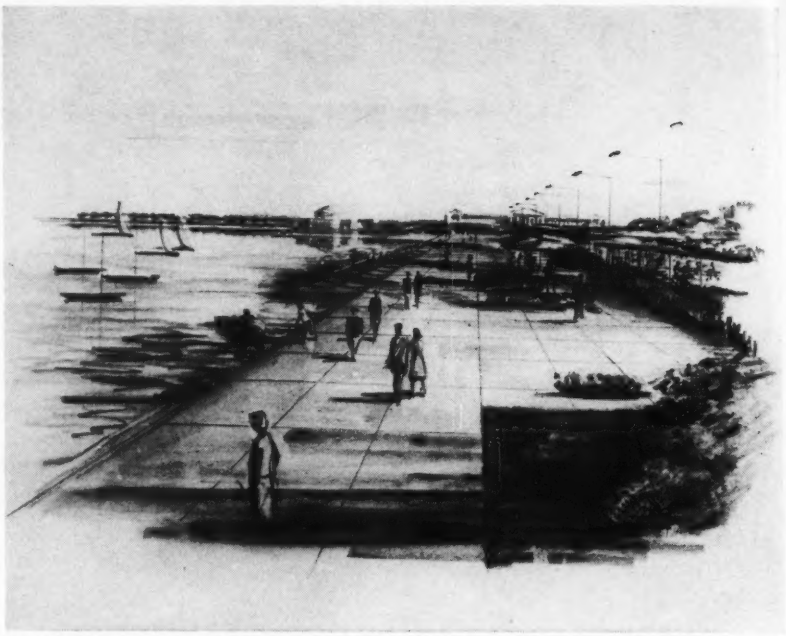
Signs at the intersections direct him to cross the drive half-way on a traffic signal and there, isolated on an island in the midst of rushing vehicles, await the signal which will bid him complete his journey.

Few accept the invitation. Regretfully they turn away.

Drive is Obsolete

That is one reason for relocating Lake Shore Drive. The other reason is Lake Shore Drive itself as an expressway. An advancement in traffic engineering when first constructed, the drive in Grant Park today is obsolete and out of date. Traffic flow is impeded by intersections, traffic signals, pedestrian crossings, left-turn lanes and 90-degree turns.

City officials have recognized that this must be corrected.



LAKESIDE BEAUTY—Lake Michigan's shoreline would become a fine promenade featuring a new plaza and gardens and lakeside dining facilities under the proposals of Chicago Central Area Committee. The grade of the park-land here would permit construction of restaurants and new pedestrian areas while still conforming to the principles of the Montgomery Ward decision.

Thus the Development Plan calls for relocation of the drive and its redesign to higher standards between the Chicago River and 26th Street.

It will provide grade separated connections to major surface streets serving the central area and remedy the present traffic barrier between the park and the lake front.

A depressed design is proposed in a relocated alignment along the east side of the Illinois Central Railroad right-of-way in Grant Park. Ramps would be located at Randolph Street, Jackson Boulevard, Monroe Street, Congress Expressway, the proposed Polk distributor, Roosevelt Road, 23rd Street, Soldier Field parking areas and McCormick Place.

Ninety degree turns on the approach to the Outer Drive Bridge will be eliminated.

North of the Chicago River, simple grade separations are under consideration at Ohio and Ontario Streets. Construction of an interchange at Oak Street is provided for in the city's current Five-Year Capital Improvements Program.

Preliminary studies for the major relocation are also provided for in the Capital Improvements Program. When completed the new drive will provide improved conditions for express traffic, improved connections to central area streets, adequate connections to Soldier Field and McCormick Place, Chicago's new $35,000,000 exposition hall.

Greater Access Seen

At this point it is important briefly to touch on access to the parks themselves. The improved Lake Shore Drive and the connecting central area arteries would provide ideal access routes for the motorist. Two major parking facilities for motorists are suggested below.

In addition there is potential for many smaller but more convenient parking areas in the parks themselves.

For the pedestrian, well-planned walkways and overpasses would do much to open the parks to the central area population.

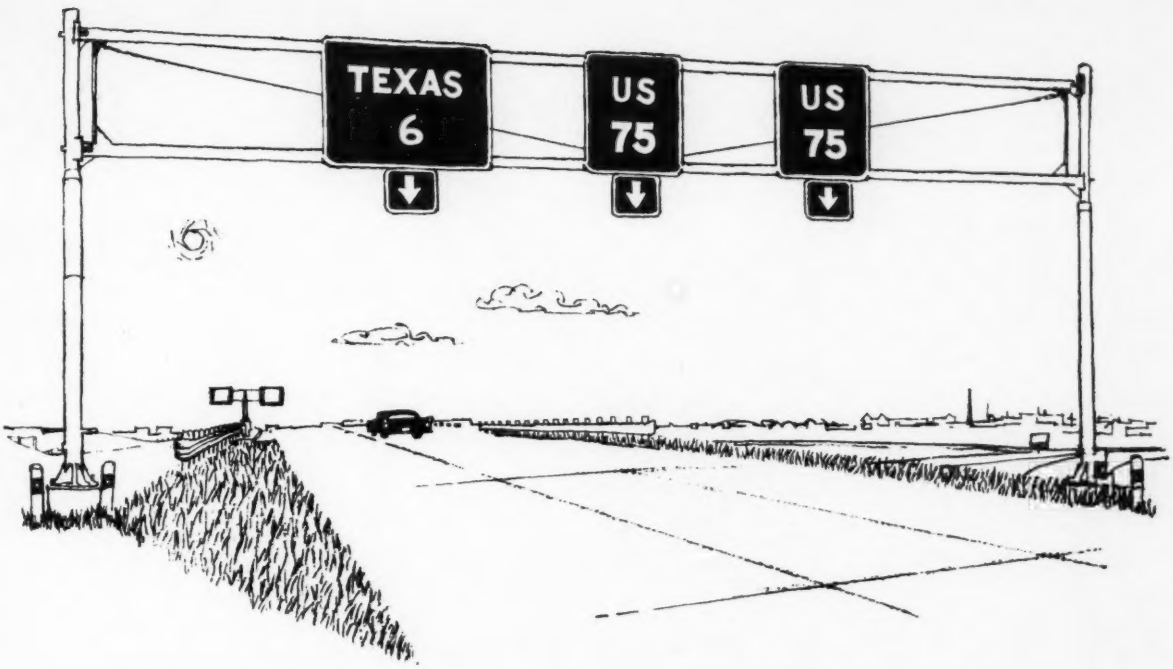
Finally, public transit would provide efficient transportation from more distant neighborhoods as well as convenient service within the parks.

A major development would be construction of a new underground parking facility south of the Art Institute.

A second major facility would be created by decking over the Illinois Central Railroad yards east of Michigan Avenue between Monroe and Randolph Streets.

This latter facility would replace parking accommodations to the east which would be absorbed in the drive relocation.

(Continued on page 38)



New KIMPREG 8000 gives color permanence to highway signs!

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For names of manufacturers and suppliers in your area — together with detailed literature and case histories, write: Kimberly-Clark Corporation, Department TE-90, Neenah, Wisconsin.

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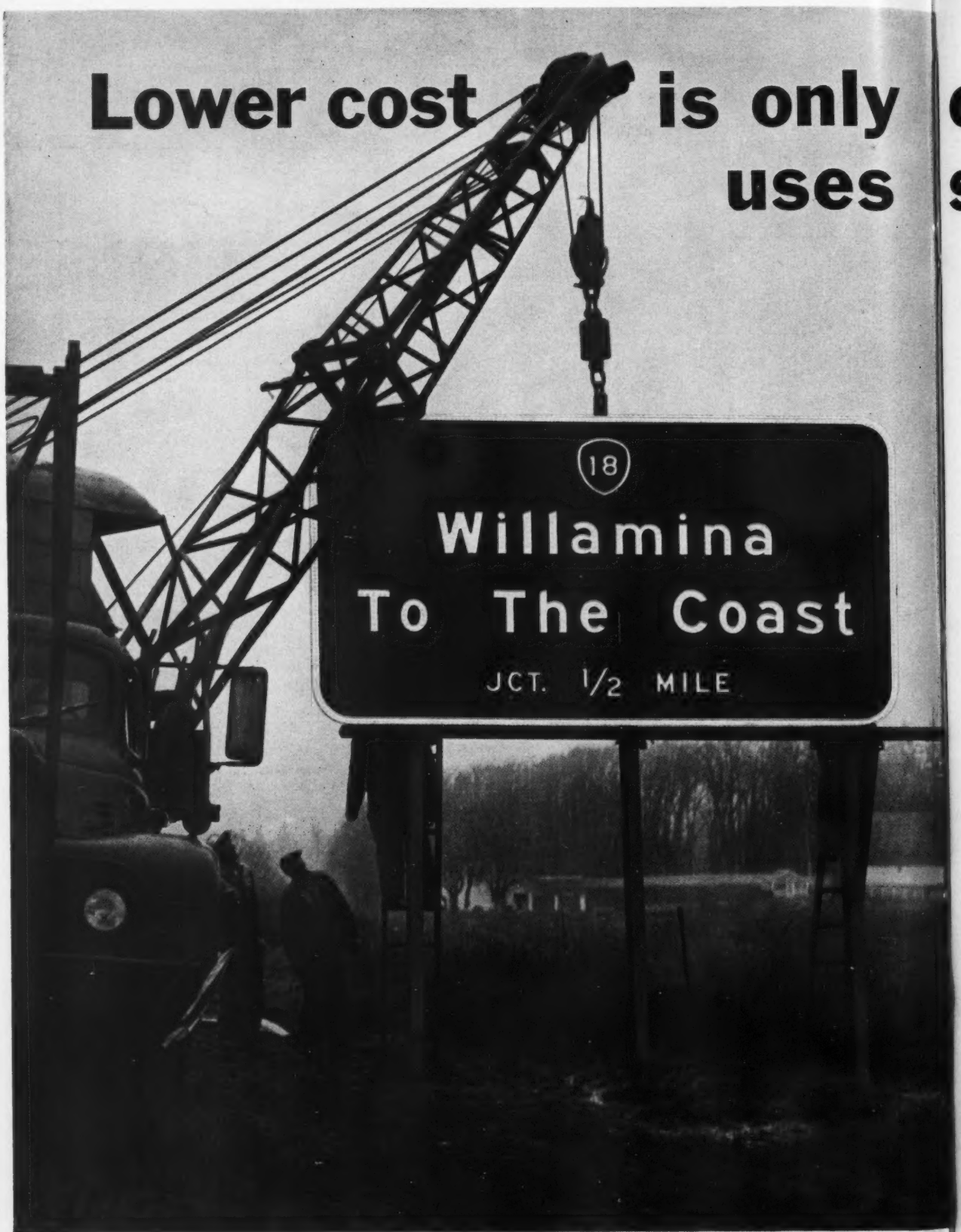

New colorfast green overlaid plywood with reflective button legend and border is used for green background direction signs.

one reason why Oregon signs of overlaid plywood

MODERN REFLECTORIZED OVERLAID PLYWOOD signs do a better job for the taxpayer as well as the motorist in Oregon.

State highway officials estimate the overall cost of an overlaid plywood sign installation averages 20 percent less than other acceptable materials. Savings are based on lower basic material costs, faster fabrication and finishing (neither sign face nor back is painted; reflective legend is applied direct)—plus elimination of the need for special back framing on signs up to 40 square feet in area.

But lower cost is only part of the story. Basically, Oregon uses overlaid plywood because it makes a strong, good-looking sign that stands up under prolonged weathering and deliberate or accidental abuse.

All told, the state maintains over 100,000 signs; 47,000 informational, 20,000 warning and 35,000 regulatory. Ninety percent are reflectorized, with reflective legend and border applied directly to the overlaid plywood surface. Key directional signs are illuminated. Black high density panels are used for warning and regulatory signs. New color-fast green acrylic overlaid plywood is used for green background direction signs to conform to national color coding on Interstate and other highways.

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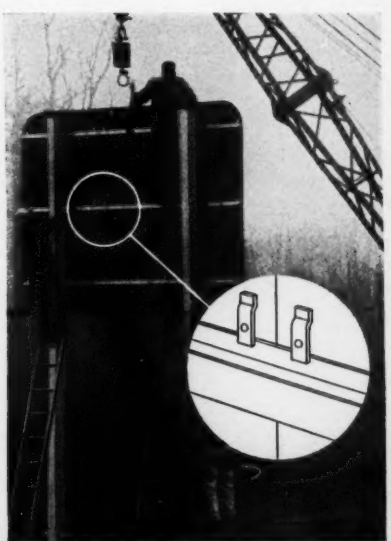
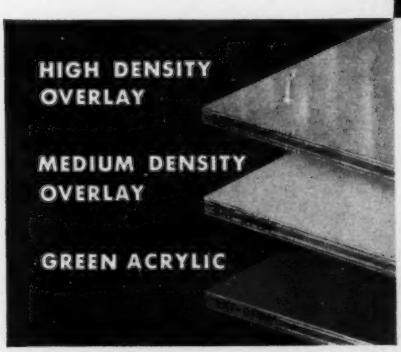


New panelized sign system used on recent Oregon installations employs standard aluminum girts and special clips. System is highly economical, permits flexibility in sign sizes and shapes. Developed by Douglas Fir Plywood Association, it meets all AASHO standards.



Medium density overlaid plywood is for plain painted signs; **high density** requires no paint protection and permits direct application of reflective sheeting. **New acrylic overlay** comes in green and white for signs with painted or reflectorized legend.

FOR PLEASURE BOATING—Off-shore from Northerly Island, shallow water would permit use of fill to create new land and new breakwaters. Under the Chicago Central Area Committee program, the area could be used for major beach development and marina facilities. A new "aqua center" would offer new beaches and beach houses and yachting-club facilities could be built. In addition, new small-craft moorings could be created to meet the growing demand from small-boat owners.

GRANT PARK

(Continued from page 34)

Indirectly contributing to the program would be the extension of Wacker Drive eastward from Michigan Avenue to a connection with Lake Shore Drive.

As part of the ring road system this would channel away much traffic which currently comes through the the park. Funds for the engineering of central area to Lake Shore Drive in this measure are provided in the city's Five-Year Capital Improvements Program.

Great Design Potential

Thus the relocated drive with new pedestrian overpasses penetrating to the park will present broad possibilities for unification and redesign of lake front recreational areas.

SKATING RINK—Chicago Central Area Committee proposals for improvement of Grant and Burnham Parks include a skating rink which would rival the Rockefeller Center Rink in New York. Artist's conception shows how the rink would look located just south of Jackson Boulevard. The view is northwest with the Art Institute on the right and Michigan Avenue on the left.

One main attraction of the parks is the opportunity to stroll through the quiet, landscaped vistas among shrubs and trees, drinking in the beauties of the lake and the skyline.

To make this even more enjoyable, Chicago Central Area Committee has recommended more imaginative treatment in several areas.

For example, along the shore of the lake from the Shedd Aquarium to Randolph Street an attractive promenade can be developed for leisurely enjoyment.

At the center of this promenade, with a view of the lake on one side and Buckingham Fountain and the skyline on the other, pleasant dining facilities can be established.

Along the Michigan Avenue frontage the park can be so designed to offer colorful, terraced plazas more inviting and useful as walkways. The new Stanley McCormick Court on the north side of the Art Institute is an example of this type of treatment.

And in Burnham Park, on Achsah Bond Drive, the Committee proposes a huge flower conservatory be built similar to the conservatories of Lincoln and Garfield Parks. This would contribute to the attractiveness of the existing cultural center at that location.

Active Sports Planned

In the area of active recreation there is great potential. Already the need for facilities for sports and exercise is great and is expected to grow with the further commercial, residential and institutional development of the central area and its environs.

One of the great opportunities offered is development of the lakeshore and use of the lake itself. For this the Committee proposes that land fill be extended eastward from Northerly Island, where Meigs Field is located.

On such a peninsula natural currents would form a bathing beach at one side and a yacht harbor at the other. Bath houses, dining facilities and a yacht club would serve them.

In the great open spaces of the parks more court games could be developed, such as shuffleboard, lawn bowling, badminton, volley ball and others.

Naturally, softball diamonds would be retained.

On Michigan Avenue there is an ideal opportunity to install a skating rink which would attract users in fall, winter and spring.

OUTDOOR MUSIC—A new, permanent Music Bowl to replace the temporary bandshell was proposed in Chicago Central Area Committee's program for improving Grant and Burnham Parks. Modern design, like that in the artist's conception above, would provide better acoustics and better accommodations for concert-goers and musicians alike while observing the principles of good esthetic treatment.

Spectator Sports

Nor would the spectator be forgotten.

Many of the facilities having other basic purposes would provide interesting viewing possibilities for the many people not actively participating, such as the skating rink and the new harbor.

Regattas, special events at McCormick Place and other spectator activities would be enhanced by the new accessibility provided by pedestrian ways, new transit routes and traffic patterns.

Other projects would be specifically designed for spectator enjoyment.

The park commissioners have long felt the band shell, where open air concerts are played to capacity audiences on balmy, summer evenings, is inadequate. It has been proposed that a huge music bowl be constructed in place of the band shell at the south end of Grant Park.

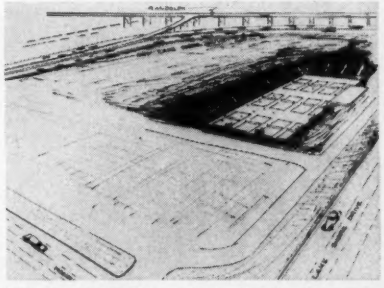
As everyone familiar with Grant Park knows, no building can be constructed there above ground.

To conform to this restriction, the music bowl would be a depressed facility with vastly increased seating accommodations, fine acoustics and a movable roof.

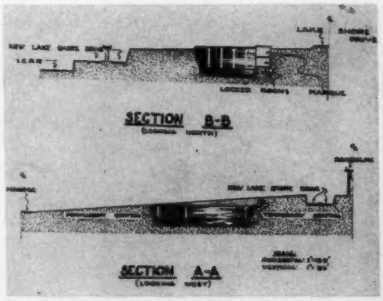
Elsewhere in the park, a new tennis stadium is proposed, suitable for championship play. It would also be depressed and would provide seating for large numbers of people. It could be designed for multiple purposes, serving for skating in winter and for pageants and other spectator assemblies in summer.

Overall the recommendations and proposals are flexible. Some improvements are needed immediately to meet current critical problems, others can be projected over a period of time.

The paramount consideration is to develop an official plan and program.



TENNIS STADIUM—Artist's sketch shows plan of the proposed tennis stadium which could be built in Grant Park under the program suggested by Chicago Central Area Committee.



OUT OF SIGHT—The artist's sketch shows how the tennis stadium proposed in Chicago Central Area Committee's program could be built into the grade of Grant Park. Construction like this would permit such a project without violating the principles of the Montgomery Ward decision.

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Chicago Completes $41,000,000 Off-Street Parking Facilities

THE PROMPT RETURN to the automobile as a major means of transportation at the end of World War II revived for Chicago the problem of providing adequate parking facilities. Faced with the prospect of increasing hordes of vehicles in the central business district, the city administration, in 1946, invited the Chicago Association of Commerce and Industry to undertake a study of needs for off-street parking. This was the first step in a program which culminated in the largest municipally-owned off-street parking system to be found anywhere.

At present, the City of Chicago owns thirteen structures and sixty-two parking lots with a combined capacity of 14,321 vehicles. Nearly six million cars are accommodated annually in the facilities.

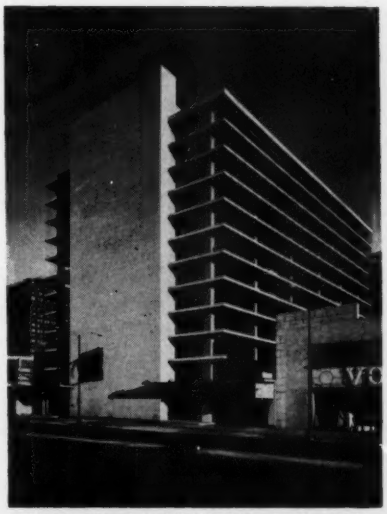
In response to the city's request, the Chicago Association of Commerce and Industry engaged consultants to conduct an engineering study. The cost of the study was shared equally by the Association and the State Street Council.

Results of the study which was submitted to the City Council in 1949 indicated there would be a shortage of 13,000 parking spaces by 1955. Consultants recommended that an immediate program be undertaken for construction of seven garages with a combined capacity of 5,234 vehicles. Cost of the project was then estimated at 15½ million dollars.

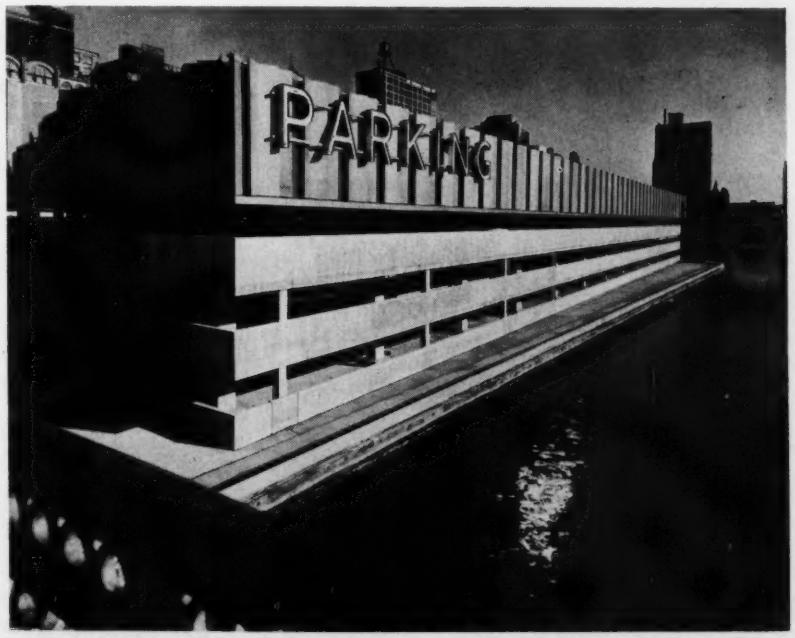
Findings of the survey prompted employment of a banking group to investigate the feasibility of financing a program with revenue bonds. The scope of the investigation was expanded to include the needs of various community shopping centers and residential areas as well as the needs of the central business district.

In January, 1952, the banking group entered into an agreement with the City of Chicago and subsequently engaged bond counsel and consulting engineers. Under terms of the contract, the city incurred no financial obligations for the bankers' fiscal services.

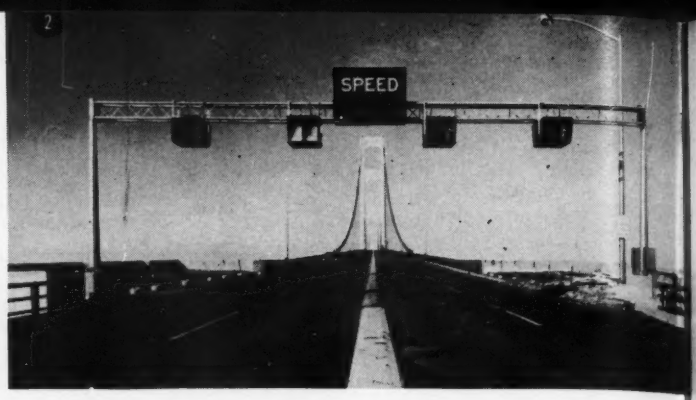
A report was submitted by the banking group to the City Council in September, 1952. Recommended in the report was the construction of five multi-level parking facilities in the central business district and four facilities on the near-north side with a combined capacity of 6,767 vehicles. In addition the report recommended seven parking lots in the Englewood shopping area and purchase of 27,000 on-street parking meters whose net revenues would be assigned to aid in amortization of bonds. Estimates of revenues and ex-



ONE OF THREE MECHANIZED STRUCTURES—is Parking Facility No. 1. Its 14 levels are served by elevators capable of lateral movement.



LARGEST OF CITY-OWNED PARKING STRUCTURES—is Facility No. 2. Its five levels can accommodate 1,230 cars. Entrances and exits are on the two levels of Wacker Drive.



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2. INSTALLATION: 56 foot aluminum box truss signal span
OWNER: State of Michigan, Mackinac Bridge Authority
LOCATION: Mackinac Bridge, St. Ignace, Michigan
CONSULTING ENGINEERS: D. B. Steinman

3. INSTALLATION: 90 foot aluminum box truss sign span
OWNER: North Carolina State Highway Commission
LOCATION: Interstate Route 40

4. INSTALLATION: 110 foot aluminum box truss sign span
OWNER: New Jersey Turnpike Authority
LOCATION: Exit 18, New Jersey Turnpike
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penses indicated that the program would be financially sound.

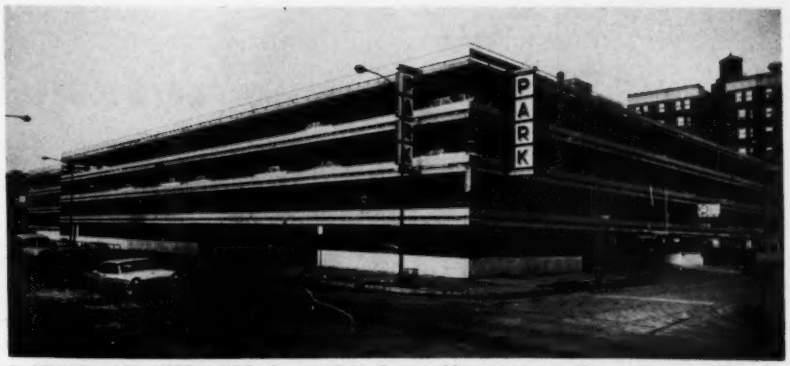
Acting under enabling legislation, Article 52.1 of Chapter 24, Illinois Revised Statutes, 1951, the City Council, on September 18, 1952, authorized issuance of $50,000,000 Parking Facility Revenue Bonds to serve commercial, industrial and other areas where a parking problem was found to exist. The ordinance authorizing issuance of bonds also provided for creation of a Bureau of Parking in the Department of Streets and Sanitation.

Bonds in the principal amount of $22,600,000 were sold in December, 1952, to finance the program outlined by the banking group.

Early in 1953, the Department of Public Works began acquisition of land and letting of contracts for design of structures. By the end of the year, contracts were awarded for construction of a twelve-level mechanical garage and a five-level ramp-type structure. Both contracts contained clauses for payment of bonuses for completion ahead of schedule.

While design and construction were proceeding on the first stage of the city's off-street parking program, in April, 1954, an additional $4,900,000 revenue bonds were sold to finance one multi-level garage and 25 parking lots in six highly concentrated neighborhood shopping centers. Late in the year, a twelve-level mechanical garage and a five-level ramp-type garage were completed and opened to the public. These facilities added 1,655 off-street spaces to the available supply in the central business district. Also placed in operation in 1954 was the Chicago Park District's $8,000,000 Grant Park Garage which was built under a portion of Grant Park and Michigan Avenue immediately east of the Loop. Its capacity is 2,359 cars.

By summer of 1955, all of the five garages scheduled for the central business district and two of the facilities on the near-north side were completed and placed in operation. Seven parking lots were opened to the public in the Englewood shopping area, whose gross retail sales are second only to those of the central business district.



BUSTLING NEAR-NORTH SIDE—is served by four parking structures. Note split level design incorporated in Parking Facility No. 4 pictured above.

The off-street parking program was again expanded in 1956, when $13,500,000 additional revenue bonds were sold. Proceeds from this sale were earmarked for five multi-level structures and thirty-one parking lots in eighteen shopping areas scattered throughout the city. Total bond sales at this stage amounted to $41,000,000.

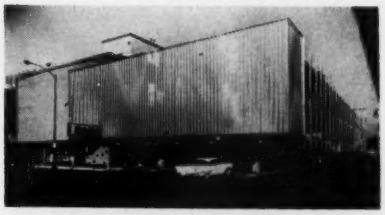
Within five years after the first sale of bonds, the city had in operation ten structures and thirty-one parking lots capable of parking more than 10,000 vehicles. Gross revenue from off-street facilities and on-street meters was nearly 5½ million dollars and net revenue was comfortably over 1.5 times bond service requirement.

Currently there are 75 off-street parking facilities in operation. Six more remain to be built in the present program. Of the thirteen structures, three are of the mechanical type employing elevators which also move laterally. In each of these cases, restricted dimensions of available land dictated choice of a mechanized facility. Remaining structures are of the ramp type, designs of which were varied to suit physical conditions of the sites and their environments.

Parking lots are located in twenty-three outlying sections of the city. All are operated on a self-parking basis, but collection of fees and control are accomplished in three different ways.

In neighborhood shopping areas, fees are collected by cashiers or attendants in lots having capacities of

(Continued on page 59)



UNUSUAL ARCHITECTURAL DESIGN—featuring metal facade makes Parking Facility No. 7 an attractive addition to a north-side shopping area.

METERED PARKING LOT—in neighborhood shopping center.

GATE-CONTROLLED LOT—for long-time parkers. Gates may be activated by coins or cards which are issued on monthly basis.

PARKING FACILITY NO. 46—is in a shopping area near the north city limits. Automatic dispensers issue time stamped tickets. Fees are collected by a cashier.

TYPICAL CASHIER — or attendant controlled parking lot.

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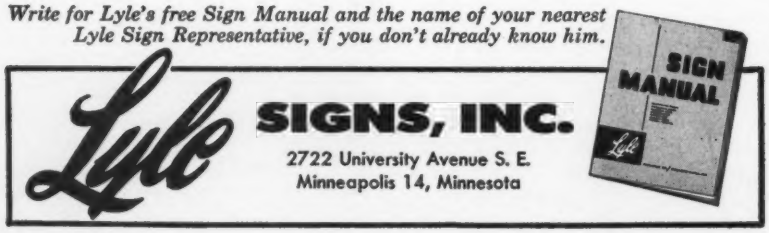

Institute Affairs

Progress Report of Highland Park Workshop

Much progress has been made since the Workshop held in Highland Park, Illinois on May 21 and 22, 1959. I.T.E. members will recall that the purpose of this conference was to consider recommendations for the betterment of our Institute and suggestions for meeting the challenge of increased traffic on our streets and highways. The purpose of this report is to indicate the action that has been taken to date. Basically, the recommendations have been directed to four separate groups:

(a) Suggestions to local sections;
(b) Recommendations submitted to the Board;
(c) Recommendations submitted to the Technical Council; and
(d) Recommendations for the individual member.

Suggestions to be Submitted to Local Sections

It was suggested that the following recommendations be considered by local sections:

Recommendations 1, 3, and 4—Undergraduate Course, Course Content, and Local Section Assistance—It is suggested that the following plan be adopted for incorporating these recommendations: Each section should appoint a committee on Education and Training. This Committee would provide the leadership and direction to the activities on the Section level, and would both contribute to and receive from the National Committee. It is suggested that the Section Committee be assigned responsibilities which might include the following:

a. Prepare a listing of schools within the jurisdiction of the Section which offer engineering courses. Included in this listing should be a breakdown of those schools that offer some traffic engineering courses and a description of these courses, and those schools that offer civil engineering courses with a breakdown of those relating to highways and transportation.

b. The Section Committee should prepare a list of speakers who might be offered for engineering groups, particularly civil engineering groups, and circulate these lists among those schools where some interest might be shown.

These listings might be expanded to a series of lectures, or even seminars and short courses.

c. The Section should as a matter of policy invite the head of the engineering departments of any schools within the Section to all of their meetings. This invitation may occasionally or regularly be extended to those professors and instructors, as well as students, who might be interested or who might become interested in the activities of the Section. Each Section should plan at least one meeting a year devoted to special programming for the benefit of students.

d. The Section should be instrumental in forming a state-wide or area-wide meeting of professors, deans, instructors, and others interested in coordinating and expanding traffic engineering programs for the schools within the area of influence.

e. It is most important that the Section encourage the employment of students or graduates of these schools by members of the Section, and, conversely, that the students and graduates of those schools seek employment with members of the Section.

f. The Section Committee could meet with those instructors who are involved in some type of traffic engineering courses, to determine if the course content, recommended by the I.T.E. Advisory Committee suggested in Recommendation No. 2 of the Highland Park Workshop, is included in their courses.

g. This Section Committee might also become an advisory group to the State Board of Registration with regard to matters pertaining to the traffic engineering and professional engineering examinations.

Recommendation 9—Traffic Engineering Question—With regard to the traffic engineering question on the examinations, this probably would require a purely local committee to work with the people who make up the examinations for the particular state in question. The Section Committee suggested in Recommendation 8 could act as an advisory group for this purpose.

Recommendation 16—Use of ITE Approved Job Specifications—Local Sections should encourage the use of ITE job specifications to describe traffic engineering jobs established in their areas.

Progress of Recommendations Submitted to the Board for Consideration

Recommendation 7—Affiliation with other engineering groups—The officers of the I.T.E. are investigating the advisability of becoming affiliated with the Engineers Joint Council. We could not qualify in the past because of the size of our membership.

Recommendation 8—Traffic Engineering Experiences—This recommendation has been referred to Department 2 of the Technical Council for its recommendation.

Recommendation 10—Other Engineering Societies—It has been the standing practice of the I.T.E. President to invite officers and members of other engineering societies to attend or participate in national I.T.E. activities. The Board has agreed to develop better understanding between the traffic engineers and other groups by developing policy statements. The recent joint statement prepared by the I.T.E. and the American Institute of Planners is a good example of the type of understanding that should be developed between other groups. Department 1 of the Technical Council has also been advised to develop a plan whereby the public will become more acquainted with the comprehensive work done by the traffic engineer.

Recommendation 12—Student Chapters—It is suggested that local sections take the initiative in encouraging student chapters in engineering schools having traffic engineering courses. The Board has relaxed the present requirement so that the faculty advisor does not need to be a full member. He could be an affiliate, an associate, or member.

Recommendation 14—Expansion of Activities—A review of our procedures in obtaining articles for Traffic Engineering magazine showed they did not need to be revised. We are getting a sufficient number of high calibre articles. Our membership, however, should take a personal interest in the affairs of the Institute and volunteer papers that would be of interest and value to the profession.

Recommendation 31—Staff Work by Members to Assist Board—It is now the practice of the Board to seek the assistance of other members to work with the Board on matters of broad interest to Institute members. Specific projects have been assigned to Sections while individual members have been invited to become a member of a Board committee.

Recommendation 32—The Third Vice President—Because of the recent change in administrative procedure of the Institute, there is no need for a third Vice President. The suggested duties of this officer will now be delegated to the new Staff Engineer.

Recommendation 34—Nominating Committee—The membership will be asked to vote on a change in the By Laws which will permit the increase in the Nominating Committee so that there will be one representative from each District. The Chairman will be selected at large.

Recommendations 35 and 36—Head-

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quarters Service—The suggested recommendations for better headquarters services can now be expected with the recent appointment of an assistant to our Executive Secretary.

Recommendation 37 — Explanatory Publication—An agreement has been reached with the Automotive Safety Foundation and the Bureau of Public Roads for the development of a study indicating the benefits of traffic engineering improvements. This will be a $31,500 study which will be coordinated by Charles W. Prisk.

Recommendation 43 — Constitution or Charter—The Board is considering a charter for each Section. The charter developed by the Midwest Section will be used as a guide. This matter will be presented to the Board in September and, if approved, is to be considered by our membership the following year.

Recommendations 47, 48, 50-56, and 59-63—Conduct of Annual Meetings—Much action has been taken pertaining to the conduct of our annual meetings. The responsibility for the conduct of our annual meetings has now been clearly assigned. The Technical Council is responsible for Technical Sessions; Local Arrangements Committee for social activities, etc. The responsibility for general format rests with the Board. Such outstanding progress is being made in improving the conduct of annual meetings that no recommendations are appropriate which would disturb the relationships between Board, Technical Council, and local Sections.

Recommendation 49—Hearing Panel—It was a recommendation of the Workshop that members of the Institute be permitted to hold an open meeting with the Board pertaining to matters of mutual interest. It is the consensus of the Board that this is now possible through their annual meeting and that no action be taken to amplify this particular procedure.

Recommendation 57 — Commercial Exhibits—The recommendation of the Workshop has not been acted upon by the Board and the present policy is to discourage commercial exhibits at annual meetings.

Recommendation 64 — Manual for the Conduct of Annual Meetings—A continuing Board Committee has been established to keep the manual up to date. This manual has just recently been revised.

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Recommendations Being Considered By the Technical Council

Recommendation 2—Course Content—A committee of Department 2 has in the past considered the possibility of developing a recommended course content for traffic engineering. Due to the numerous variables in the content of other highway courses and prerequisites, it was found impractical. A set of traffic engineering course notes suitable for an initial undergraduate course is available and fills the most pressing need. (See "Course Notes: Introduction to Traffic Engineering." Prepared by Advisory Committee on In-Service Traffic Engineering.)

Another Department 2 committee is active in the field of civil service examinations. It has been found that civil service boards do not rely on sources such as this for actual questioning. On this basis, the committee is now in the process of finalizing the report.

In view of the above, it was recommended that no further action be taken.

Recommendation 13—Brochures—A brochure on the Institute, its scope, objectives, membership, etc., is a matter for the administrative division. (See Recommendation No. 37.)

A brochure on the career opportunities in traffic engineering has been discussed and Department 2 is presently developing a committee project to produce such a document for use by guidance counselors at both high school and college levels. Other possible approaches include articles in student engineering magazines, etc., and these will be pursued also.

Recommendation 15 — Upgrading Job Specifications — Committee 2B is presently undertaking the revision and up-dating of job specifications and examinations and no further action is appropriate at this time.

Recommendation 19—Proposed Revisions of Membership Grades & Qualifications—The directive to Department 2 has been complied with and the report filed and published. (Traffic Engineering Magazine, November 1959.)

Recommendation 20 — Technical Committees, Objectives—The Technical Council has accepted the objectives stated. A special subcommittee of the Council is preparing a report on the advisability of establishing a Department on Traffic Planning to give greater organizational emphasis to this area, although the subject has not been neglected by past committees. In view of this activity, no further action seems necessary.

Recommendation 21—Areas of Study—Although the terminology is somewhat different, the Technical Council activity is entirely in accord with this recommendation, particularly as it relates to the inappropriateness of specific research. No action is recommended.

Recommendation 22 — Organization—Although the title "Steering Committee" is entirely appropriate, the Technical Council acted at its September meeting to continue the present title rather than to undertake the necessary revision of Rules of Procedure.

Recommendations 23 and 24—Public Relations—The Technical Council has arranged through the Executive Secretary to have a monthly column in "Traffic Engineering" to publicize committee activities more adequately and request general cooperation and participation. No further action is recommended.

Recommendation 25—Steering and Project Committees — The proposals set forth have already been put into effect by the Technical Council with

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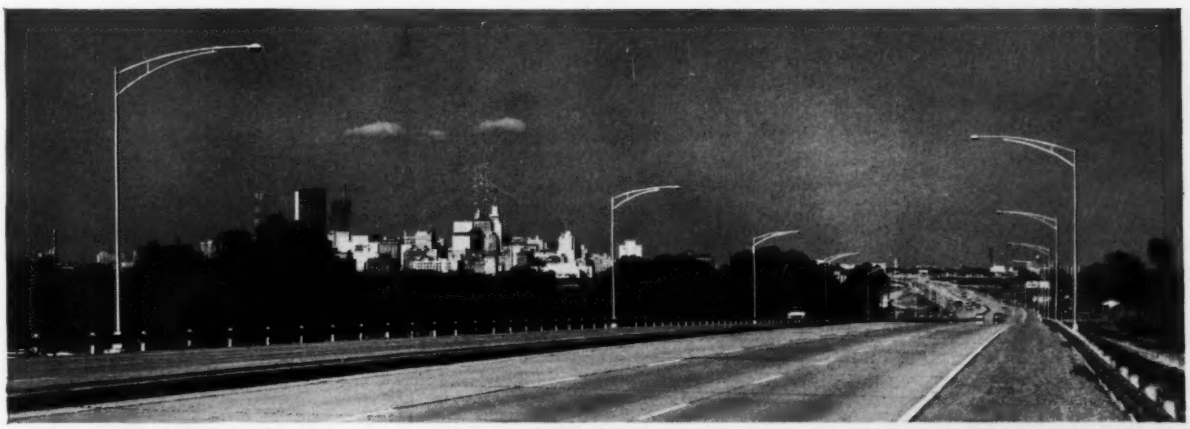

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the exception of Item D which the Council feels would not be productive as a standard procedure. No further action is required.

Recommendation 26—Initiating Section Studies—The Technical Council is entirely sympathetic to this procedure and has made limited use of it in the past. It should be noted that the initiation of Section projects can probably better be done by the Section itself and this recommendation should be called to the Section's attention. (This will be done in a report to the Sections.)

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Recommendation 27 — Clearing House—This is a matter for decision by the Board of Direction rather than the Technical Council. The Council has indicated that it feels the need for added headquarters personnel to assist in its work.

Recommendation 28—Suitability of Technical Studies—This matter has received the attention of the Technical Council. Each Department Standing Committee is charged with just these responsibilities and the possible realignment of Departments should increase the effectiveness of the procedure. No further action is recommended.

Recommendation 58 — Planning of Technical Programs—This matter is to be given full consideration at future meetings of the Technical Council.

Recommendations for Individual Members of the Institute

Recommendation 5—Review Activities—It is strongly urged that all traffic engineers review their activities objectively to make certain they are gaining proper public recognition for their work. The use of adequate public relations work is a great asset to any traffic engineering department wishing to gain public support.

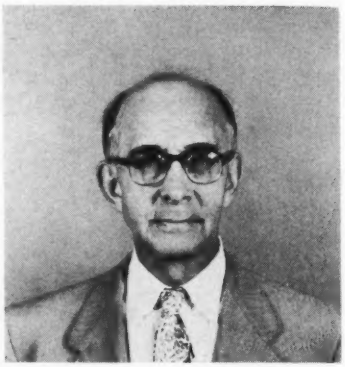
Recommendation 6 — Participation in Other Societies—It becomes the responsibility of all traffic engineers to take an active interest in the professional activities of other engineering societies. In this respect, they should continue to educate other societies with the work of the Institute.

Several recommendations are being studied at the present time and no recommendation is as yet available. This pertains to Recommendations 11, 33, 39, 40, 41, 42, 44, and 45. There has been no change suggested for Recommendation 29 pertaining to the change in the name of the Institute.

As Chairman of the Workshop Committee, I am very happy to present to the membership the tremendous progress that has been made since May of 1959. It should be of great satisfaction to those who have given up their time to the Workshop that their efforts have borne fruit.

Respectfully submitted,
Matthew C. Sielski
Chairman,
Workshop Committee

Joseph L. Wehmeyer



Joseph L. Wehmeyer (Member, ITE) died August 1 after a short illness. For many years associated with the Wayne County Road Commission, he had retired in January, following which he had made an extensive trip to Europe. His illness occurred after his return to Detroit where he made his home. He was 66 years old.

Mr. Wehmeyer graduated from the University of Michigan in 1916. After brief engineering experience, he entered the Army as a private, from which he advanced to the rank of 1st Lieutenant in the Engineers. After the war he worked for a year in Monroe County, West Virginia.

In 1920 he joined the staff of the Wayne County Road Commission. After several years in construction and right-of-way, Mr. Wehmeyer was appointed Engineer of Traffic and Safety in 1931, a position he held until his retirement this year, with nearly 40 years of service.

An active member of the Institute of Traffic Engineers, he served on the Board of Direction from 1943 to 1945 and again from 1950 to 1952. In addition to his activities in the Institute, he was active in the American Society of Civil Engineers, the Engineering Society of Detroit, the Michigan Engineering Society and the Economics Club of Detroit. He was a registered engineer, and took an active part in assisting the Michigan Board in their work of examining and registering engineers.

Technical Committees

Institute of Traffic Engineers

TECHNICAL DIVISION, 1959-60

Gordon K. Gravelle, Vice President
Division Head

Technical Council

Gordon K. Gravelle, Chairman

John E. Baerwald, non-voting
David M. Baldwin, ex-officio
W. H. Carsten
Sam Cass
Marble J. Hensley
Fred W. Hurd, non-voting
J. E. Johnston
C. J. Keese
Kenneth G. McWane, non-voting
C. W. Prisk
C. C. Robinson

Stephen G. Petersen, Secretary

Committee on Technical Sessions

Wayne N. Volk, Chairman
(Members of the Committee are the members of the Technical Council)

Handbook Editorial Board

Robert A. Mitchell, Chairman

J. E. P. Darrell
Harmer E. Davis
George W. Howie
Fred W. Hurd
Eugene Maier
Donald M. McNeil
O. K. Normann
Robert J. Allen, Secretary

John E. Baerwald, Editor

Department No. 1

JOINT COMMITTEES AND REPRESENTATIVES TO OTHER ORGANIZATIONS

C. W. Prisk, Department Head

Scope: Through cooperative arrangements with other national organizations in the traffic and transportation field, the Institute of Traffic Engineers participates in certain joint activities and also has representatives on certain committees of other organizations. The President makes such appointments or authorizes such representation.

Joint Committees:

1. National Joint Committee on Uniform Traffic Control Devices—

   Wilbur S. Smith, Chairman of Institute delegation

   M. E. Bruening
   Marble J. Hensley
   George W. Howie
   Eugene Maier
   Leslie J. Sorenson
   T. T. Wiley

2. National Committee on Uniform Traffic Laws and Ordinances—

   (a) John H. Mitton, chairman of Institute delegation, John T. Hanna, alternate
   Henry A. Barnes
   Evan E. Olmstead, alternate
   Harold G. Bauerle
   Abner W. Coleman, alternate
   Leon W. Corder
   Bernard B. Twombly, alternate
   Allan R. Pepper
   Ralph H. Sawyer, alternate
   Paul L. Ristroph
   George W. Howie, alternate

   (b) David M. Baldwin, member of Executive Committee

   (c) O. K. Normann, member of Sub-Committee on Brakes

   (d) E. R. Ricker, member of Sub-Committee on Vehicle Lighting

3. American Institute of Planners—Institute of Traffic Engineers Joint Committee—

   Alan M. Voorhees, chairman

   Leon W. Corder
   William R. Marston
   O. K. Normann
   Richard A. Overmyer
   Ross T. Shoaf

Representatives to Other Organizations:

4. American Standards Association—Highway Traffic Standards Board—

   Marble J. Hensley, member
   Roy W. Cottam, alternate

5. Illuminating Engineering Society—

   Charles H. Rex, member of Roadway Lighting Committee

6. International Commission on Illumination—

   Charles S. Michalski, member of U. S. National Technical Committee W-1.3.3 on Colors of Signal Lights

7. Matson Fund Board of Award—

   Joseph E. Havenner, representative

8. National Research Council—

   (a) Edward G. Wetzel, member
   (b) Edward G. Wetzel, member
   David M. Baldwin, alternate, Highway Research Board

9. National Safety Council—

   (a) David M. Baldwin, member, Traffic Conference
   (b) John E. Baerwald, member, Traffic Education and Training

10. President's Committee for Traffic Safety—

    (a) Edward G. Wetzel, member, Advisory Council
    (b) Kenneth G. McWane, member, Research Committee

11. U. S. Jaycee Community Development Project—

    Alger F. Malo, representative

Department No. 2

PROFESSIONAL STANDARDS, EDUCATION, AND ADMINISTRATION

C. C. Robinson, Department Head

Standing Committee:

John E. Baerwald
Edward M. Hall
Burton W. Marsh
Arnold H. Vey
George M. Webb

Committee 2A—Career Guidance Material—

A Department project.

Scope: To describe the occupation of professional traffic engineering for use in vocational guidance at high school and college levels.

Committee 2B—Civil Service Requirements—

Edward M. Hall, Chairman

Members:

Robert W. Crommelin	Jack A. Hutter
Henry M. DeNoble	John W. McDonald
Paul H. Fowler	C. Harold Miller
Fred W. Hurd	Harry O. Price
A. L. Hutchison	Charles M. Upham, Jr.

Martin A. Wallen

Scope: To develop for the guidance of Civil service boards recommended prerequisites and scopes of examinations for county traffic engineering positions.

Committee 2H—Traffic Engineering Functions—

Thomas J. Seburn, Chairman

Members:

Daniel J. Hanson	David W. Schoppert
Henry S. Hulme, Jr.	Harvey Shebesta, Jr.
Robert A. McNeil	Ralph H. Sprungman
Joseph C. Oppenlander	E. L. Walker, Jr.

Robley Winfrey

Scope: To carry on field studies to obtain information from which to formulate recommendations as to the proper functions of a traffic engineering unit, manpower allocations to various functions according to city size, minimum staff levels according to city size, the minimum size city justifying a traffic engineering unit, and other sources of assistance to smaller cities.

Department No. 3

TRAFFIC OPERATIONS MEASURES

Winston H. Carsten, Department Head
Walter H. Klapproth, Asst. Dept. Head

Standing Committee:

Eugene Maier	Harry Porter, Jr.
Paul Ristroph	Walter H. Klapproth

Henry W. Osborne

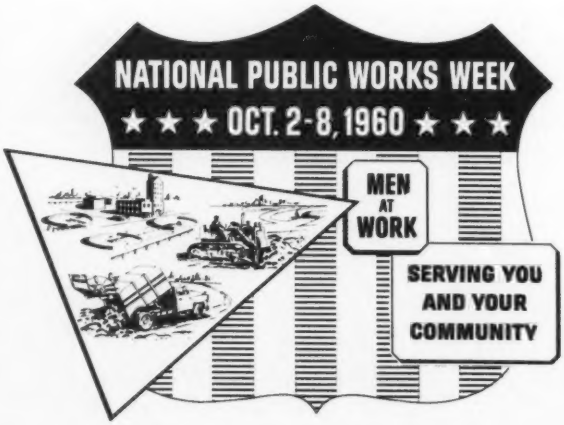
Committee 3C—Warrants for Speed Zones—

William L. Carson, Chairman

Members:

A. J. Basile	J. C. Oppenlander
William R. Carrow	Armand L. Phaneuf
Maurice V. Greer	Edward L. Smith
E. E. Lewarch	Deane M. Wenger

Earl C. Williams, Jr.



Scope: To review and appraise techniques of speed zoning and to develop a factual basis for the selection of proper numerical limits.

Department No. 4

APPLICATIONS OF TRAFFIC CONTROL DEVICES

Samuel Cass, Department Head

Daniel J. Hanson, Asst. Dept. Head

Standing Committee:

John F. Exnicios	Holden M. LeRoy
John E. Hartley	William J. Miller, Jr.

Department No. 5

GEOMETRIC DESIGN OF TRAFFIC & TERMINAL FACILITIES

C. J. Keese, Department Head

Standing Committee:

J. Paul Buckley	D. W. Loutzenheiser
F. B. Crandall	Robert A. Mitchell

Allan R. Pepper

Committee 5A—Design Criteria for Urban Expressways—

John J. Dobelek, Chairman

Members:

Benedict G. Barkan	Michael J. Hartigan
Ray C. Bergendoff	H. Jack Leonard
L. A. Dondanville	William L. Marvin
T. R. Galloway	Edward A. Mueller
George F. Hagenauer	Paul D. Muffley
Daniel S. Hammond	Marshall M. Rich

Scope: To establish design standards for urban expressways and freeways.

Committee 5E—Driveway and Curb Cut Permits and Design—

Raymond J. Desjardins

Members:

Melvin Bierman	Dennis D. Kyrk
Gustav A. Byrom, Jr.	Frederick J. Sansom
James W. Challis	Irving B. Weinberg
Eugene J. Clifford	Earl C. Williams, Jr.
Stuart A. Cunningham	Herbert B. Woodling
J. M. Heidenreich	Stanley Woolman

Scope: To study design and controlling dimensions of driveways and curb cuts and recommended procedure for the administration of such controls.

Department No. 6

TRANSPORTATION PLANNING

J. Edward Johnston, Department Head

Committee 6A—Planning Criteria for Traffic Ways—

David W. Schoppert, Chairman

Members:

Ray C. Bergendoff	Robert R. Coleman
Jack Berman	Robert A. Keith
Edwin F. Clark	Howard S. Lapin
Donald E. Cleveland	William R. McGrath

Scope: To develop the basic concepts of operational planning criteria for system planning, describe the role of the traffic engineer in system planning, and the data, methods and considerations involved. In addition, to enumerate the sources of available data in a reference bibliography.

Department No. 7

DESIGN AND STANDARDS FOR DEVICES, EQUIPMENT AND MATERIALS

Marble J. Hensley, Department Head

Standing Committee:

Henry A. Barnes — Fenton G. Jordan, Jr.
Maxwell N. Halsey — William H. Mann
D. Grant Mickle

Committee 7A—Traffic Control Signals—

Karl A. Bevins, Chairman

Members:

Walter J. Addison — James H. Kell
Nathan Avins — C. E. Leberknight
John W. Barr — Erwin R. Leiser
William C. Brandes — William E. Lenz
Richard E. Brown — Holden M. Leroy
S. E. Butterfield — Ralph G. Lewis, Jr.
Donald E. Cleveland — Aubrey Matthews
Roy W. Cottam — Charles S. Michalski
David F. Dabney — Anthony F. Miscimarra
K. C. Eichelberg — Richard A. Overmyer
John F. Exnicios — W. H. Peterson
Lawrence E. George — James E. Reading
Paul L. Green — Charles A. Rose
Irwin Hart — James B. Rudden
George W. Howie — Richard W. Siver
John Hoxie — Ralph W. Warr
E. L. Walker, Jr.

Scope: To establish standards and prepare specifications for materials and devices used in traffic control signal installation and operation.

Committee 7C—Sign Illumination Techniques—

Richard I. Strickland, Chairman

Members:

Jesse C. Bullock, Jr. — Glen W. Johnson, Jr.
Keith E. Bushnell — E. E. Kinney
R. C. DeKay — William J. Larkin
William S. Derrick — George E. MacQuoid
James R. Doughty — Henry W. Osborne
Irwin Hart — James S. Saylor
A. L. Hutchison — W. E. Schwanhausser, Jr.
David Solomon

Scope: To collect and disseminate information on, and to prepare standard specifications for, internally and externally illuminated traffic signs and equipment therefore.

Committee 7G—Traffic Survey Devices—

E. Wilson Campbell, Chairman

Members:

John L. Barker — V. C. Kennedy, Jr.
Donald E. Cleveland — H. A. Lopata
Wilfred W. Davis — Edward A. Mueller
Daniel L. Gerlough — Michael A. Powills, Jr.
Richard C. Hopkins — Thomas E. Young

Scope: To investigate and report on available devices or instrumentation for traffic surveys, to suggest new devices or modifications, and to detail operational characteristics of such devices.

1960-61 COMMITTEES

(A partial list of new committees being organized for the coming year to carry on the work of the Technical Division. Members interested in serving on any of these or other committees are urged to communicate as soon as possible with the appropriate Department Head—or the Secretary of the Technical Council.)

Department No. 1

To be determined, with appointments made by the President.

Department No. 2

Committee 2C—*Traffic Engineering Libraries.* Objective: To determine the traffic engineering subjects of interest to principal institutional and technical libraries as a guide to agencies seeking reference material and in the distribution of reports and other materials.

Committee 2D—*Traffic Engineering References.* Objective: To compile a list of basic references covering each phase of traffic engineering for the use of practicing engineers and students.

Committee 2E—*Traffic Engineering Education.* Objective: To determine the extent to which traffic engineering subjects are being offered at undergraduate and graduate levels by U. S. colleges and universities.

Department No. 3

Committee 3A—*Railroad Grade Crossings.*

Committee 3B—*Transit Operation.*

Committee 3C—*Warrants for Speed Zones.* (Continuation of present project committee.)

Department No. 4

Committee 4A—*Pedestrian Control Warrants and Practices.*

Committee 4B—*Practices and Needs in Traffic Control and Surveillance as Related to Radio Frequencies.*

Committee 4C—*Pavement Edge Markings.*

Department No. 5

Committee 5B—*Survey and Evaluation of Freeway Design, Research and Development.*

Department No. 6

Committee 6A—*Planning Criteria for Traffic Ways.* (Continuation of present project committee.)

Department No. 7

Committee 7B—*Signal Colors.*

Committee 7C—*Traffic Signal Lamps.*

Note: This list is not complete, since additional project committees may be approved by the Technical Council at the meeting on September 11, 1960. Nor does the list include certain "across-the-board" committees of the Technical Council.

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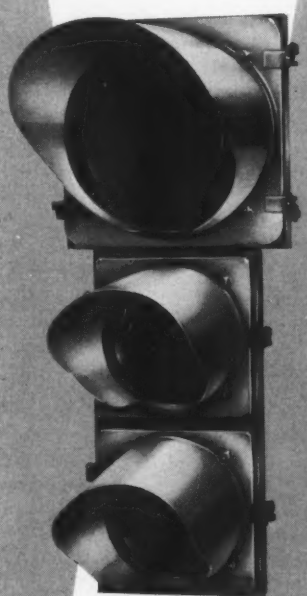
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Traffic News

At the Pan-American Highway Congress, Bogota, Columbia, May 1960. l. to r.: Edward G. Wetzel (ITE President); Rep. John Blatnik (U.S.); B. D. Tallamy (Federal Highway Administrator, U.S.); Fred Cass (Minister of Highways, Ontario); Eduardo Dibos (Peruvian Roads Assn.); and Robert O. Swain (Executive Director, IRF).

ASF to Conduct Accident Study

The Automotive Safety Foundation will direct a study of the effects of traffic control measures and roadway design on traffic accidents under a contract with the Bureau of Public Roads, it has been announced.

Ultimate aim of this research is to reduce traffic accidents by giving highway and traffic engineers data on the safest types of roadway design and traffic control measures.

Costs of the study, which is scheduled to be completed by the end of this year, will be shared jointly by the two organizations.

Immediate objectives of the project are:

1. To summarize all available information on the effects of roadway elements such as pavement and shoulder widths, curvature, grades and sight distances, and traffic control devices and measures such as signs, signals, markings, speed zoning and channelization;

2. To identify proven cause and effect relationships;

3. To identify the areas in which additional research is needed to establish possible relationships between traffic accident experience and roadway elements and traffic control measures;

4. To prepare one or more reports in non-technical language, liberally referenced, for professionals and laymen;

5. To compile a complete bibliography of available information.

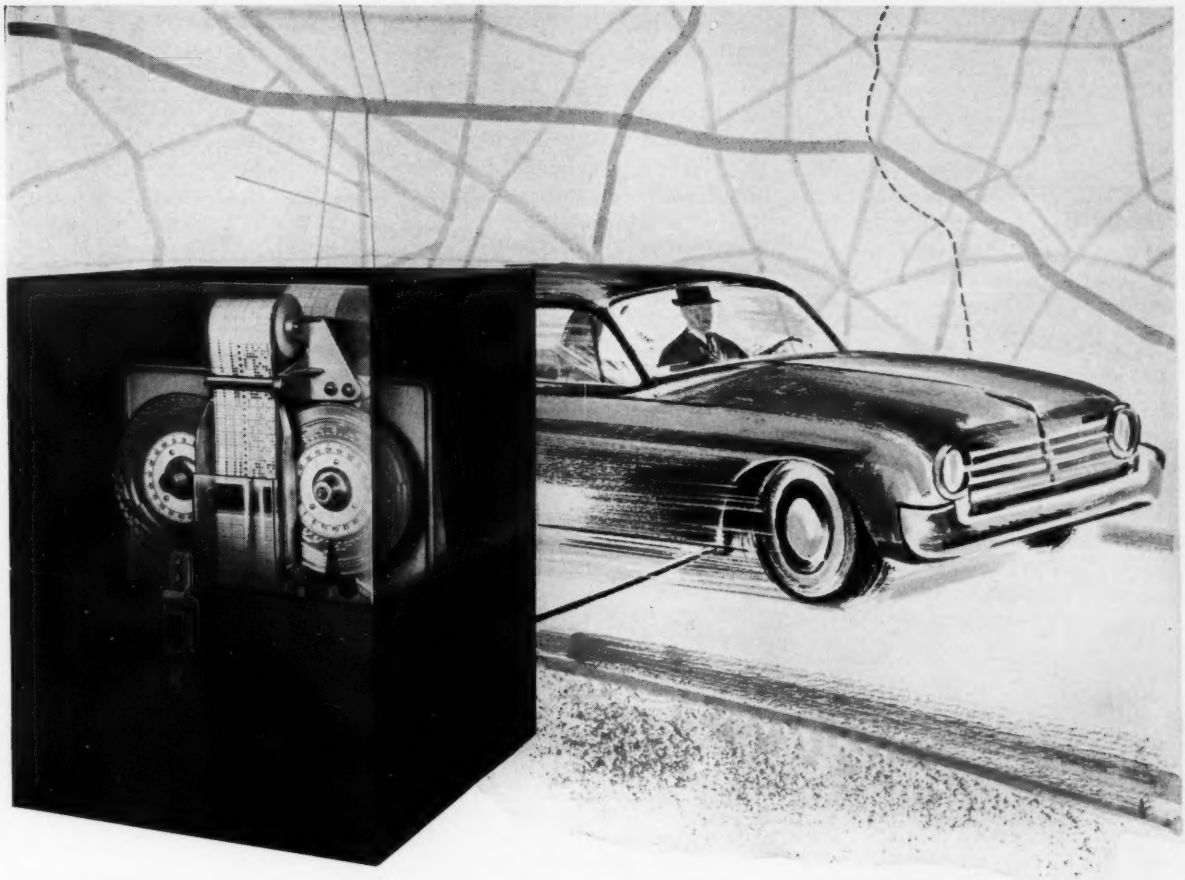
Although there have been isolated studies which attempt to show the effects of individual traffic control measures or roadway elements on traffic accidents, results of this research have never been collected and catalogued for the guidance of engineers and administrators. The forthcoming study and report will fill the need for a comprehensive collection of existing knowledge to support engineering decisions.

Selected cities and states will be requested to contribute reports on pertinent subjects which originally were intended for internal or limited circulations and hence are not available in libraries.

Universities with graduate or research programs will be similarly solicited and their libraries searched. The intention is to collect all available, reliable research findings dealing with the subject, whether published or unpublished, which contain quantitative findings or conclusions.

Signs Impairing Safety Can be Barred

The Appellate Division of the New York Supreme Court has ruled that billboards and other advertising signs that impair traffic safety may be barred from private land along the highways. The restriction applies to signs that can be seen from the highway by a person with normal vision. The majority opinion noted that the Public Works superintendent had the authority to improve highway safety.



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U. S. Motor-Vehicle Registrations in 1959

Motor-vehicle registrations in the United States during 1959 totaled 71,502,394, state agencies have reported to the Bureau of Public Roads, U. S. Department of Commerce. Federal Highway Administrator Bertram D. Tallamy noted that this was a gain of 3 million vehicles over the 1958 registrations. The 4.3 per cent rate of increase reversed the declining trend of the past few years.

The 1959 total included 59,566,721 passenger cars, 265,114 buses, and 11,670,559 trucks. Increases over comparable figures for 1958 were 4.3 per cent for passenger cars and 4.2 per cent for trucks. A similar comparison for buses is not made since the bus data reported are, for the first time, estimates of the numbers in operation rather than registration counts. Many commercial buses are registered simultaneously in several states.

California had the highest total registration in 1959, with 7.4 million vehicles. Second was New York, with 5.0 million. Texas and Pennsylvania had over 4 million vehicles registered; Illinois, Michigan, and Ohio each had more than 3 million; and New Jersey and Florida had more than 2 million. Eighteen other states each had over 1 million registrations. The nine leading states combined had 51 per cent of the national total.

Smallest registrations, as might be expected, were in states of small area or sparse population: Delaware, Nevada, Vermont, and Wyoming each had less than 200,000 vehicles. The District of Columbia also had less than 200,000, but from its nature is not comparable to the states.

Data for the two newest states of the Union are included in the annual motor-vehicle registration tabulation for the first time. Hawaii registered 214,062 vehicles in 1959; Alaska, 71,469.

Recent annual increases in total registrations, which reached a peak in 1955 when the automotive industry attained a record sales volume, have been as follows:

1954	4.1 per cent
1955	7.2 per cent
1956	3.9 per cent
1957	3.0 per cent
1958	1.7 per cent
1959	4.3 per cent

Hull Elected NSPE President

Noah E. Hull, vice president and general manager of the Hughes Gun Company and assistant to the vice president, manufacturing, of the Hughes Tool Company, has been elected president of the National Society of Professional Engineers.

Mr. Hull, of Houston, Texas has served as National Society vice president for the Southwestern Region. A registered professional engineer in three states—Michigan, New York, and Texas—he has held executive engineering positions with the General Motors Corporation, the Firth Carpet Company, and the National Gypsum Company. Mr. Hull has long been active in the San Jacinto Chapter of the Texas Society of Professional Engineers, and he is a former chairman (1955-58) of the Professional Engineers Conference Board for Industry. He received a degree in civil engineering from Purdue University in 1917.

84 Million Motor-Vehicle Operators in the U. S.

A total of 84.5 million motor-vehicle operators' licenses were in force in the United States during 1959, Federal Highway Administrator Bertram D. Tallamy announced today. The estimate, prepared by the Bureau of Public Roads, U. S. Department of Commerce, from reports received from State agencies, was 3.5 per cent higher than the 81.5 million total in force during 1958. There were 1.20 licensed operators per registered motor vehicle in 1959, a slight change from the 1958 figure of 1.21, Mr. Tallamy noted.

Operators licenses are issued for varying periods of time by the states. In 23 states, licenses are issued for 2 years; but 5 states issue them for 1 year only, 10 states for 3 years, 6 for 4 years, and 1 for 5 years. Six states have varying or indefinite licensing periods.

Because of this variation only a part of the driving population obtain license renewals in any one year, and the total licenses in force must be estimated from data reported for the current and previous years.

California led the states in 1959 with 8.1 million licensed operators, followed by New York with 6.9 million and Pennsylvania with 5.4 million. Illinois, Michigan, Ohio, and Texas each had over 4 million. These seven states accounted for 45 per cent of the national total. As might be expected, these were also the seven leading states in 1959 in motor-vehicle registrations and motor-fuel consumption, although not in the same ranking order.

The ratio of 1.20 licensed operators per registered motor vehicle reflects the long-term trend toward one operator per vehicle, although the ratio has been fairly constant in recent years. Texas has already reached the level of one licensed operator per registered motor vehicle, and Montana and Nevada have more vehicles than operators.

Walker Named President of ASEE

Dr. Eric A. Walker, president of the Pennsylvania State University, is the new president of the American Society for Engineering Education. He will serve for the year beginning in July, 1960.

Dean Melvin R. Lohmann of Oklahoma State University and Professor Newman A. Hall of Yale University have been chosen as vice presidents, and Wendel W. Burton of the Minnesota Mining and Manufacturing Company has been re-named treasurer.

New Jersey Turnpike to Install Median Barrier

The New Jersey Turnpike Authority has announced plans to erect a median barrier along 75 miles of the Turnpike. This will mean that the entire 131-mile highway will have this type of protection.

The project calls for the construction of a galvanized steel or aluminum guard rail median barrier between Milepost 0 at Deepwater and Milepost 90 at the Garden State Parkway Interchange No. 10. A median barrier presently exists for a distance of about 15 miles between those two points.

Contractors will be bidding on four contracts providing also for a reinforced concrete barrier along two bridges at the Raritan River and at Cranbury. All other Turnpike spans will get the metal guard rail. In addition, a single guard rail will be installed at selected locations along the sides of the Turnpike for a total distance of four miles.

Completion of the project, it was announced, will see the New Jersey Turnpike as the first road of its kind with a median barrier along its entire length.

Rand Corporation Receives Grant for Study

The Ford Foundation has announced a grant of $500,000 to the Rand Corporation for a three-year exploratory study of urban transportation throughout the United States.

The Rand Corporation, Santa Monica, California, is a private, non-profit research and development organization noted for its "systems research" on major problems of national defense and strategy, using teams of researchers from engineering, economics, physics, mathematics, and the social sciences. The study as announced marks its initial entry into the transportation field.

Rand's research will consist of an engineering survey of current and projected technology; an analysis of costs and the benefits of present urban transportation systems as compared with other systems that might be devised; and an analysis of the function of the modern city.

"The grant to Rand is intended to stimulate long-range planning and development in urban transportation, both in the transportation industry itself and in local and Federal government," said Paul Ylvisaker, director of the Foundation's Public Affairs program. "Moreover, many local studies of urban transportation are now going on throughout the country, and there should be a common point of reference for them. It is hoped that these studies will profit from the special competence Rand represents in systems analysis, in the integration of many skills and disciplines, and in adapting the most recent advances in technology to the solution of social problems."

In its engineering survey, Rand will attempt to establish the parameters and probabilities within which the present system of urban transportation can be studied and influenced. The design of vehicles, power plants, and materials will be examined with a view toward the possibility of instituting new combinations of equipment and devices. In addition, Rand will examine such technological developments as TV and telephone shopping that might affect the demand for urban transportation.

In their analysis of the function of the modern city, the researchers will make a cross-section sample of major United States cities and, for analytical purposes, develop a model of a generalized city. This model will be used to test the effects of changes in such factors as population, family income, speed of the transportation network, political structure, and retailing and industrial processes.

Economists, engineers, an urban sociologist, and a political scientist will work on the study of urban transportation. They will maintain contact with research projects now going on in several metropolitan areas and with university and industrial groups.

Coming Events

September 11-16—ILLUMINATING ENGINEERING SOCIETY—
National Technical Conference, Penn-Sheraton Hotel, Philadelphia, Penna. Contact: IES, 1860 Broadway, New York City.

September 12-16 — INSTITUTE OF TRAFFIC ENGINEERS—
30th Annual Meeting, Edgewater Beach Hotel, Chicago, Ill. Contact: ITE, 2029 K St. N.W., Washington 6, D. C.

September 19-22—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION—
Annual Meeting, Astor Hotel, New York City. Contact: Irvin Shulsinger, IMSA, 130 West 42nd Street, New York 36, N.Y.

September 26-30—FIFTH INTERNATIONAL TRAFFIC STUDY WEEK—
Nice, France. Contact: M. H. Perlowski, Secretary to the OTA/PIARC/IRF Joint Committee, 32 Chesham Place, London S.W.1, England.

October 2-5 — FLORIDA CONFERENCE ON TRAFFIC OPERATIONS—
Sponsored by Florida Section, ITE and General Extension Division of Florida. University of Florida, Gainesville, Fla. Contact: Edward A. Mueller, c/o Florida State Road Commission, Tallahassee, Fla.

October 9-12—AMERICAN TRANSIT ASSOCIATION—
Annual Meeting, Sheraton Hotel, Philadelphia, Penna. Contact: ATA, 355 Lexington Ave., New York, N. Y.

October 9-13—AMERICAN SOCIETY OF CIVIL ENGINEERS—
Annual Convention, Statler Hotel, Boston, Mass. Contact: ASCE, 29 West 39th St., New York, N. Y.

October 15-23 — NATIONAL AUTOMOBILE SHOW—
Cobo Hall, Detroit, Michigan.

October 17-21—NATIONAL SAFETY COUNCIL—
National Safety Congress and Exposition, Hilton, Congress and other hotels, Chicago, Ill. Contact: NSC, 425 N. Michigan Avenue, Chicago 11, Ill.

November 28-December 2—AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS
Annual Meeting, Sheraton-Cadillac Hotel, Detroit, Mich. Contact: AASHO, 917 National Press Bldg., Washington 4, D.C.

January 9-13, 1961 — HIGHWAY RESEARCH BOARD—
Annual Meeting, Sheraton-Park Hotel, Washington, D. C. Contact: HRB, 2101 Constitution Avenue, Washington 25, D.C.

March 28-30, 1961—WESTERN SAFETY CONGRESS—
Ambassador Hotel, Los Angeles, Calif. Contact: Greater LA Chapter, National Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

New Appointments

Marston Named Assistant Commissioner In Chicago

William R. Marston (Member, ITE) has been named assistant commissioner of the Department of Streets and Sanitation for the City of Chicago. In this new position he will have the duty, among others, of coordinating the street and traffic work of the city with the work of the state, the county and the Federal agencies as these relate to the traffic program of the area.

William R. Marston

Mr. Marston has been since 1950 the deputy city traffic engineer of the city. Prior to that, he was traffic engineer for the Chicago Surface Lines (now the Chicago Transit Authority). In his professional career, therefore, he has had broad experience in many phases of the traffic and transportation problems confronting Chicago.

A graduate of the University of Illinois in electrical engineering, Mr. Marston is a registered engineer in Illinois. He has been active in work of the Institute, having served on the Board of Direction from 1957 to 1959, and is a past president of the Midwest Section. He has also been active in the Western Society of Engineers, of which he is a past president. He is a past president of the Illinois Engineering Council, and is therefore well-known in engineering circles in the Middle West.

Job Changes

William J. Bartels — formerly Traffic Planning Engineer with the City of White Plains, New York; is now Senior Traffic Engineer with the firm of Edwards & Kelcey in Newark, New Jersey.

James W. Booth—formerly Assistant Commissioner of Traffic with the Department of Transit and Traffic in Baltimore, Maryland; is now Traffic Survey Engineer with the Utah State Department of Highways in Salt Lake City, Utah.

Don H. Johnson—formerly City Traffic Engineer of Victoria, Texas; is now Traffic Research Engineer for the City of Austin, Texas.

Harvey R. Joyner—formerly Research Assistant with the Civil Engineering Department of North Carolina State College in Raleigh; is now Traffic Engineer with Barton-Aschman & Associates in Evanston, Illinois.

Harry J. Krueper—formerly Assistant Highway Engineer with the California Division of Highways in San Bernardino, California; is now an engineer with the firm of Neste & Brudin, Civil Engineers, in San Bernardino.

Lowell A. Powars—formerly Civil Engineer II with the Dade County Department of Public Works in Miami, Florida; is now Assistant County Engineer with the Broward County Board of County Commissioners in Ft. Lauderdale, Florida.

Walter S. Scott—formerly Traffic Engineer with Porter, Urquhart, McCreary & O'Brien in Seattle, Washington; is now Traffic Engineer for Community Planning Consultants in Vancouver, B. C., Canada.

Ted M. Vanderstempel—formerly City Traffic Engineer of Saginaw, Michigan; is now Director of Parking and Traffic Engineering with the City of Ann Arbor, Michigan.

Columbus E. Vick, Jr.—formerly Research Assistant with the Civil Engineering Department of North Carolina State College in Raleigh; is now Assistant Project Engineer with Harland Bartholomew and Associates in Birmingham, Alabama.

Leslie Williams—formerly Traffic Adviser with the United Nations in Ankara, Turkey; is now President of Coordinated Planning Services in Philadelphia, Pennsylvania.

Title Changes

Floyd L. Anthony—is now Assistant Regional Engineer with the U. S. Bureau of Public Roads in Chicago, Illinois; was Regional Design Engineer.

John E. Baerwald—is now Professor of Traffic Engineering at the University of Illinois in Urbana, Illinois; was Associate Professor of Traffic Engineering.

Edward F. Cleary—is now Deputy Commissioner, Operations Branch of the Department of Transit and Traffic in Baltimore, Maryland; was Assistant Commissioner of Traffic.

Kenneth W. Crowley—is now Research Analyst with the Port of New York Authority in New York City; was Assistant Highway Planning Engineer.

Russell E. Harrison—is now Engineer of Traffic & Safety of Wayne County Road Commission in Detroit, Michigan; was Assistant Engineer of Traffic & Safety.

Joseph E. Lema—is now Traffic Control Engineer II in the Bureau of Traffic Engineering and Electrical Services of the Milwaukee Department of Public Works in Milwaukee, Wisconsin; was Traffic Control Engineer I.

New Publications

Highway Needs and Programming Priorities

Bulletin 249, Highway Research Board, 2101 Constitution Avenue, Washington 25, D. C. June, 1960. 75 pp. $1.80.

This bulletin comprises four papers presented at the 39th Annual Meeting of the Highway Research Board on the general field of programming priorities to meet the needs of the current highway program. Included are the following:

"The Congestion Approach to Rational Programming," by Evan H. Gardner, proposes a priorities rating formula based on rational sufficiencies for use in Pennsylvania.

"Advance Programming Methods for State Highway Systems," by James O. Granum and Clinton H. Burnes, lists and describes the application of eight major factors involved in selecting highway improvement projects.

"A Criterion Designed to Aid Highway Expenditure Programming," by Charles M. Hummel, describes an attempt to systematize the problem of programming expenditure of available highway construction funds.

"Estimation of County Primary Road System Needs by Sample Survey Methods," by Donald O. Covault and Harold L. Michael, analyzes four sampling methods and concludes that sample survey techniques for estimation of total highway needs on county road systems in an entire state are practical.

A Study of the Generation of Person Trips by Areas in the Central Business District

By B. C. S. Harper and H. M. Edwards, Department of Civil Engineering, Queens University, Kingston, Ontario. May 1960. 31 pp. plus appendices.

This report presents the results of an investigation which endeavored to find out if the traffic that flows in and out of a city's center each day is directly related to the buildings, and hence the floor space in the area. It is believed such a relationship could be used in conjunction with sound economic forecasts of CBD space usage to predict future travel to the center more accurately than by existing techniques.

Use was made of the results of origin-destination traffic surveys and central business district floor space studies to develop regression equations for a number of cities. These equations explain the variations in number of person trips with destination in the CBD zones, on the basis of variation in the amount of floor space in three broad use classifications in the various zones —Retail, Service-Office, and Manufacturing-Warehousing.

Roads and Their Traffic

Edited by Ernest Davies, Assoc. Inst. T., Blackie and Son Limited, London, England. June 1960. 350 pp., 35s.

This book is designed to inform the layman of the functions and scope of traffic engineering. Mr. Davies and 12 other contributors have prepared chapters for this book dealing with practical applications of traffic engineering, highways both in Great Britain and on the Continent, parking, traffic control, lighting and several other related topics. Each of the contributors is a specialist in his field. The list includes an American professor and several authors from continental Europe as well as England.

Enrico Maggenti, left, inspector for the California Division of Highways, discusses the newly approved "Botts Dots" traffic buttons as installed on the San Jose-Los Gatos Freeway, with Grant Wiswell, head of Grant Wiswell and Co., Redwood City, California.

New Freeway Traffic Lane Marker Dots

White dots marking lanes on the new 3.25-mile section of the San Jose-Los Gatos Freeway which opened in June mark a new method of solving the problem of marking lane lines on heavy-traffic roadways. The new freeway section extends from Bascom Street, San Jose, California, to the southern end of the Nimitz Freeway.

Clearly visible at all hours, rain or shine, according to the suppliers, the four-inch, three-dimensional lane delineator buttons represent the culmination of some six years of intensive and exacting research and development work conducted under the guidance of the Materials and Research Laboratory, California Division of Highways, Sacramento.

Participating in the work and now in the manufacture and placement of the buttons are several Northern California and national industrial firms.

Known as "Botts Dots," the newly approved traffic buttons are named for Dr. E. D. Botts of Sacramento, former senior chemist for the Materials and Research Laboratory, now retired.

At night and even during rain, the lane marker buttons appear as bright dotted lines of light on the pavement, according to Grant Wiswell, Palo Alto businessman who helped develop the buttons and now heads the group sponsoring their application.

"Unusually high reflectance built into the buttons is the secret of their clear visibility day and night," Mr. Wiswell reported. "Four inches in diameter and five-eights of an inch high in the center, each button contains several hundred thousand tiny and optically clear glass spheres, the largest not more than two one-hundredths (.02) of an inch in diameter.

"Imbedded in a special, tough, resilient, virtually unbreakable and wear-proof white polyester resin," he continued, "the glass spheres reflect light brilliantly from any source, hence the high reflectance which makes the buttons clearly visible. Because of their shape, the buttons also cause an audible and plainly felt vibration in any car whose tires run along or across them." As traffic wear exposes more of the reflective beads, reflecting efficiency does not diminish with age.

For further information on any or all phases of the new "Botts Dots" traffic lane delineator buttons, write Grant Wiswell and Co., 2566 Bay Road, Redwood City, Calif.

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Lower Cost—Higher Revenue

Before you consider any other method of controlling off-street parking—investigate Parcoa! Make a careful comparison between Parcoa equipment and other parking controls. Note, for example, the low initial cost of Parcoa and the high costs of meters . . . Analyze maintenance problems . . . 2 gates means 2 points of service . . . 1 collection point . . . 50 meters means 50 points of service and 50 points of collection.

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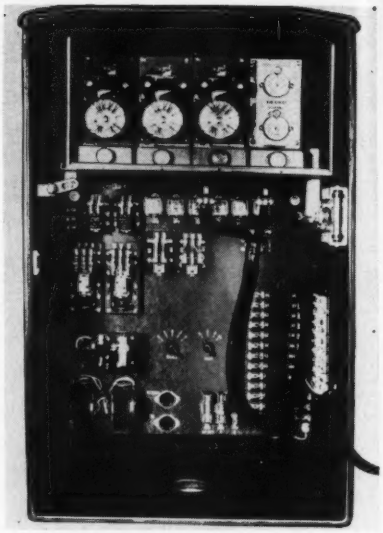
New Traffic Controller Introduced by Marbelite

The Marbelite Company, Inc., has introduced a two-phase, semi-vehicle actuated controller, completely electro-mechanical in operation. The M-35 SVAP controller is designed for operation in a coordinated system but may also be used to good advantage at isolated intersections. The three dials permit different cycle lengths as well as varying cycle splits, thereby providing control flexibility greater than that available in other semi-vehicle actuated controllers.

The M-35 SVAP is designed for synchronous operation in both interconnected and non-interconnected systems. When interconnected it will maintain any of three offsets selected by the master controller; in a non-interconnected system, the M-35 SVAP will maintain a single offset as is usual with synchronous motors, all without the necessity and expense of synchrolizers. A switch permits non-synchronous (isolated) operation. In "isolated" the lights change to cross street green (after main street clearance) immediately upon receipt of an actuation—providing the main street guaranteed period has expired.



Detailed information is available from The Marbelite Co., Inc., 175 N. 10th Street, Brooklyn, N. Y.

Wald Adopts Push-Button Cleaner

A popular improvement brought out 18 months ago on one type of machine has been incorporated into the entire line of striping machines manufactured by Wald Industries, Huntingdon, Pa.

Announcement of the inclusion of a push-button cleaner on all Wald striping machines was made this month.

Brought out on Wald's Model 8T machine in November, 1958, the foot-controlled push-button cleaner met with immediate approval by street and highway departments.

The push-button cleaner works on a single valve for each spray. To operate, the workman simply depresses the valve by means of a conveniently placed foot button. Cleaning is accomplished through the atomizing air system of the machine.

Before the improvement, a time-consuming operation involving reduction of pressure and the turning of three separate valves was necessary for cleaning.

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FLOORING and PATCHING COMPOUND

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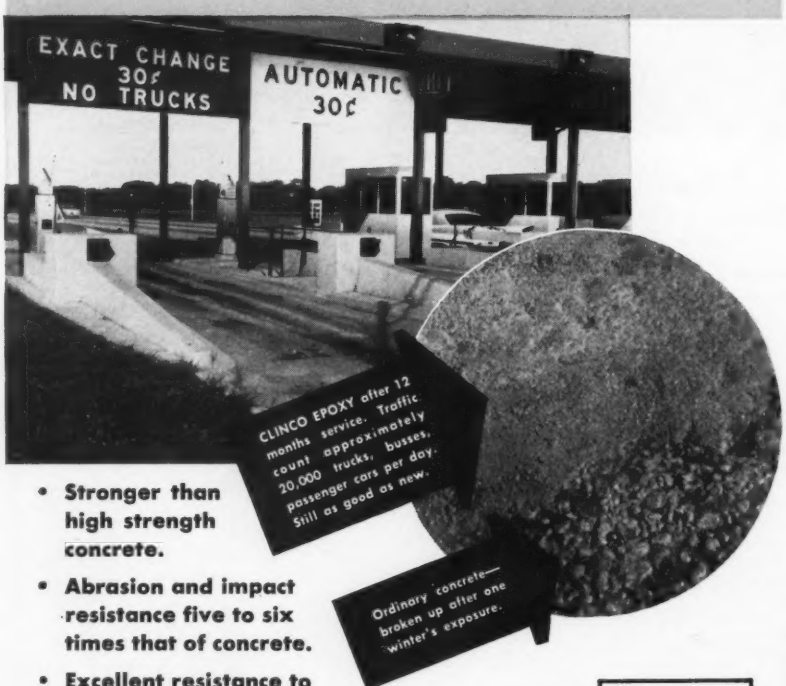
TOLL ROAD Service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CLINCO EPOXY after 12 months service. Traffic count approximately 20,000 trucks, busses, passenger cars per day. Still as good as new.
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NATIONAL ASSOCIATION

Position: Traffic Engineer with well known National Association active in Traffic & Safety.

Requirements: At least a B. S. engineering degree, in 30-40 year age bracket, with at least six years practical experience, preferably urban, at least three years in position of major responsibility. Must be able to write and speak effectively, and to work well with groups of laymen, engineers, and other professional groups. Ability to initiate, develop and prepare reports on projects without extensive or detailed supervision.

Salary: Good salary, desirable working conditions in city with many stimulating contact possibilities. Future is attractive for right person. Opening now available.

Apply: Write Box 860, c/o Institute of Traffic Engineers, 2029 K Street, N.W., Washington 6, D. C.

DAYTON REGIONAL TRANSPORTATION STUDY

Position: Traffic Engineer.

Requirements: Degree in Civil Engineering plus one year graduate training in traffic engineering. Three years experience. Individual will be Consulting Traffic Engineer to two-county engineering offices and several small cities in the Dayton Metropolitan Area. Will act as advisor to Councils and Engineers on operational traffic engineering matters. In addition, individual will represent smaller cities, in addition to non-professional personnel, on the Regional Transportation Committee which is actively preparing a transportation plan for an anticipated 1980 population of 950,000.

Salary: $10,000-$12,000 depending on qualifications.

Apply: Secretary, Regional Transportation Committee, 16 N. Ludlow Street, Dayton 2, Ohio.

LANCASTER, PENNSYLVANIA

Position: Traffic Engineer—To plan major circulation systems and perform routine Traffic Engineering duties. Position offers tremendous challenge for individual judgment.

Requirements: Engineering degree preferred with course in traffic. Experience will be highly considered and can be substituted for degree.

Salary: $5,500 to $7,000 depending on qualifications.

Apply: Mr. E. Richard Falck, City Planning Director, Public Safety Building, Lancaster, Pennsylvania. Submit resume with letter of application. All inquiries will be kept confidential.

WASHINGTON, D. C.

Position: Traffic Planning Engineer, to be sole advisor to city and regional planning agency on highway, transit and parking for small and large-scale projects and area-wide plans. Will work in cooperation with area transportation agencies.

Requirements: Civil engineering degree or equivalent; minimum three years' professional engineering; graduate training in traffic engineering, and urban transportation experience desired. Federal Civil Service GS-13 or -14.

Salary: $10,650 to $11,939 or $12,230 to $13,520 with moving expenses payable.

Apply: Send Federal Civil Service forms to National Capital Planning Commission, 7013 Interior Building, Washington 25, D. C.

OFF-STREET PARKING

(Continued from page 43)

90 or more cars and high turn-over. Flexibility of this method of control permits subsidy of parking fees by merchants. In some cases automatic ticket dispensers and control gates are used to supplement personnel.

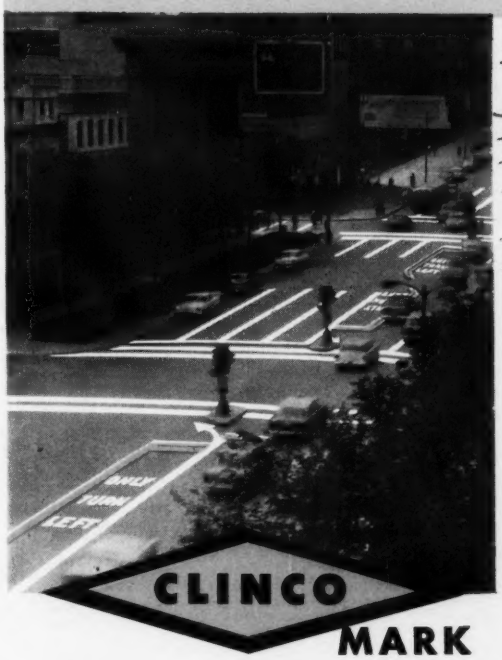
Parking meters are used in lots having high turn-over but insufficient capacity for economical employment of cashiers or attendants. City police enforce regulations calling for deposit of coins in the meters.

Automatic coin or card-operated gates are used in lots where there is primarily a demand for parking for extended periods (four hours or longer). Such lots are generally located in congested residential areas. Use of gates permits around-the-clock service, seven days a week, to satisfy demand for day and night parking. Automatic counters close lots when full.

The Bureau of Parking is responsible for administration of the off-street parking program. However, the city has found it advantageous to contract with experienced private concerns for operation of half of the off-street fa-

(Continued on page 61)

How much TORTURE can YOUR TRAFFIC PAINT STAND?



North Michigan Ave., Chicago—one of the busiest streets in the world.

Traffic count 55,000 every 24 hours (taxicabs, buses, passenger cars).

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MEMBERSHIP APPLICATIONS

The Institute of Traffic Engineers welcomes applications from qualified traffic engineers, but does not desire as members persons who are unqualified. Listed below are the names of those from whom applications for membership or transfer in grade have been received since the last published list. Institute members are urged to review this as soon as possible and immediately inform the Executive Secretary's office if names of people are found who are known to be unqualified for ITE membership or transfer.

New Applications

BISSELL, Howard Hurst
Traffic Research Engineer—D.C. Department of Highways and Traffic, Washington, D. C.—for JUNIOR.

CRUMBLEY, Dennis Lee
Traffic Engineer Assistant II—City, 105 Public Safety Building, Seattle, Washington—for JUNIOR.

D'ADDABBO, Frank M.
Design Engineer Electrical—Traffic—Connecticut Highway Department, Electrical Division, Traffic Bureau, Hartford, Connecticut—for ASSOCIATE.

EDWARDS, Raymond James
Traffic Engineering Assistant—City of San Jose, California—for ASSOCIATE.

GRECCO, William L.
Associate Professor of Civil Engineering—University of Pittsburgh, 325 Engineering Hall, Pittsburgh, Pennsylvania—for ASSOCIATE.

GRUBB, Robert W.
Assistant City Traffic Engineer—City of Des Moines, Iowa—for ASSOCIATE.

JOHNSON, Herbert J.
Traffic Engineer, Manager of Kansas City Office—Burgwin & Martin, 408 West Seventh Street, Topeka, Kansas—for MEMBER.

KRIEGER, Arthur Andrew
Traffic Engineer—City of Pasadena, California—for JUNIOR.

MACK, Lawrence Emerson
Assistant Highway Engineer—California Division of Highways, Fresno, California—for ASSOCIATE.

PARKER, Robbie Wilford
Traffic Engineer—Arkansas State Highway Department, Little Rock, Arkansas—for ASSOCIATE.

ROTHENBERG, Morris Jerome
Traffic Surveys Engineer—Wisconsin Highway Commission, Madison, Wisconsin—for JUNIOR.

STEWART, Gene Goodwin
Project Manager—De Leuw, Cather & Co. of Canada Ltd., Ottawa, Ontario, Canada—for JUNIOR.

STROK, Wojciech
Assistant Traffic Engineer to Senior Traffic Engineer—Traffic Branch, Department of Highways, Victoria, B. C., Canada—for JUNIOR.

VAN ZYL, Pieter Roux
Senior Engineer—Van Niekerk, Kleyn & Edwards, P. O. Box 1641, Pretoria, South Africa—for ASSOCIATE.

WAGNER, Frederick Allan, Jr.
Specialist in Traffic Engineering—Highway Traffic Safety Center, Michigan State University, East Lansing, Michigan—for JUNIOR.

Applications for Transfer

BAKER, Richard Louis
Associate Highway Engineer—California Division of Highways, Los Angeles, California—for ASSOCIATE.

BOGGS, Henry Patterson
District Traffic & Planning Engineer—Florida State Road Department, Fifth District, DeLand, Florida—for MEMBER.

BROWN, Philip Sidney, Jr.
Senior Associate Highway Engineer, Planning—Washington State Department of Highways, Olympia, Washington—for ASSOCIATE.

FRISCHER, Donald
District Traffic Engineer—California Division of Highways, District VII, Los Angeles, California—for ASSOCIATE.

HIGGS, Robert Wilson
Traffic & Photogrammetric Engineer—Highways Division, Federal Department of Public Works, Riverside Drive, Ottawa, Ontario, Canada—for ASSOCIATE.

HULME, Henry S., Jr.
Traffic Engineer—Arlington County Virginia, Arlington, Virginia—for ASSOCIATE.

KINGMAN, William Otto
District Traffic Engineer—Washington Department of Highways, Vancouver, Washington—for ASSOCIATE.

LEWIS, Ralph G., Jr.
City Traffic Engineer—Room 215, City Hall, Chattanooga, Tennessee—for MEMBER.

McKAY, Benjamin Wyatt, Jr.
Engineer III—City, 101 West Third Street, Dayton, Ohio—for ASSOCIATE.

MURRAY, Harry Bruce
Associate Traffic Engineer—City, Room 1005, City Hall Annex, Philadelphia, Pennsylvania—for MEMBER.

THOLBORN, George Franklin
Assistant District Traffic Engineer—California Division of Highways, Department of Public Works, Stockton, California—for ASSOCIATE.

Yearbook Changes

ABBOTT, William R., Jr. (Associate)
341 Sheridan Avenue, Piedmont 11, California.

ANTHONY, Floyd L. (Associate)
Assistant Regional Engineer, U. S. Bureau of Public Roads, 2938 E. 92nd Street, Chicago 17, Illinois. BAport 1-4300.

BAERWALD, John E. (Member)
Professor of Traffic Engineering, 404 Civil Engineering Hall, University of Illinois, Urbana, Illinois. EMpire 7-6611, ext. 2333.

BARTELS, William J. (Junior)
Senior Traffic Engineer, Edwards & Kelcey, 3 William Street, Newark 2, New Jersey. MArket 3-1804. SEND MAIL: Apt. 15 P, 230 Mount Vernon Pl., Newark 6, New Jersey.

BOOTH, James W. (Associate)
Traffic Survey Engineer, Utah State Department of Highways, 525 West 1300 South, Salt Lake City 14, Utah. SEND MAIL: 1774 East 3990 South, Salt Lake City 17, Utah.

BURLESON, Joe M. (Associate)
Traffic Engineer, Traffic Signals, Inc., 222 Beach Street, Shreveport, Louisiana. 4-4300. SEND MAIL: 3928 Michigan Circle, Shreveport, Louisiana.

CLEARY, Edward F. (Associate)
Deputy Commissioner, Department of Transit and Traffic, 401 E. Pratt Street, Baltimore 2, Maryland. PLaza 2-2000, ext. 435.

COPLEN, Roy I., Jr. (Associate)
Maintenance Superintendent, Missouri State Highway Department, 329 South Kirkwood Road, Kirkwood 22, Missouri. YOrktown 6-3800. SEND MAIL: 929 North Harrison Avenue, Kirkwood 22, Missouri.

CROWLEY, Kenneth W. (Junior)
Research Analyst, Port of New York Authority, 111 Eighth Avenue, New York 11, New York. ALgonquin 5-1000, ext. 8063.

FRANKLIN, Jerome D. (Member)
Director of Public Service (Works), City, 301 Market, S.W., Grand Rapids 2, Michigan. GLendale 6-6566.

HAENEL, Herman E. (Junior)
Traffic Designer, Texas Highway Department, 11th and Brazos, Austin, Texas. GReenwood 6-9101. SEND MAIL: 906 Jewell St., Austin 4, Texas.

JOHNSON, Don H. (Junior)
Traffic Research Engineer, City of Austin, City Hall, Austin, Texas. GReenwood 6-8311.

JOYNER, Harvey R. (Junior)
Traffic Engineer, Barton-Aschman & Associates, 600 Davis Street, Evanston, Illinois. UNiversity 9-0660. SEND MAIL: 426 Custer Avenue, Evanston, Illinois.

KRUEPER, Harry J. (Junior)
Engineer, Neste & Brudin, Civil Engineers, P. O. Box 902, San Bernardino, California. TU 8-6508.

LEMA, Joseph E. (Junior)
Traffic Control Engineer II, Bureau of Traffic Engineering & Electric Services, Room 909 Municipal Building, 841 N. Broadway, Milwaukee 2, Wisconsin. BRoadway 6-3711, ext. 351. SEND MAIL: 4335 N. 70th Street, Milwaukee 16, Wisconsin.

LOVE, Gerald D. (Associate)
District Engineer, New York Division Office, U. S. Bureau of Public Roads, 881 Madison Avenue, Albany 8, New York. HObart 3-5581, ext. 295. SEND MAIL: 4 Brookside Drive, Delmar, New York.

McFARLANE, Douglas E. (Junior)
Engineer-in-training, Ontario Department of Highways, 2 Webber Avenue, Hamilton, Ontario, Canada. SEND MAIL: Apartment 302-A, 799 Robinson Road, Burlington, Ontario, Canada.

MOE, Robert I. (Junior)
Assistant District Traffic Engineer, Milwaukee Metropolitan District, Wisconsin State Highway Commission, 794 North Jefferson Street, Milwaukee 2, Wisconsin. BRoadway 1-6934. SEND MAIL: 1612 Church Street, Wauwatosa 13, Wisconsin.

PAYNE, Junius H. (Associate)
Consulting Engineer, 160 West Bay Street, Magnolia, Mississippi.

POWARS, Lowell A. (Associate)
Asst. County Engineer, Engineering Department, Broward County Bd. of County Comm., Court House, Ft. Lauderdale, Florida. JAckson 3-5476. SEND MAIL: 3451 S.W. 20th Street, Ft. Lauderdale, Florida.

ROBINETTE, Paul S. (Member)
Commissioner, Division of Traffic Engineering, City, 618 Michigan Street, Toledo 2, Ohio. CHerry 4-1961, ext. 243.

SCOTT, Walter S. (Junior)
Traffic Engineer, Community Planning Consultants, 1553 Robson Street, Vancouver 5, B. C., Canada. MUtual 3-8491. SEND MAIL: 842 Anderson Road, Richmond, B. C., Canada.

VICK, Columbus E., Jr. (Junior)
Assistant Project Engineer, Harland Bartholomew and Associates, 1925 29th Avenue. Office No. 2, Birmingham 9, Alabama. TRemont 9-4882.

WERT, Robert E. (Junior)
Traffic Control Engineer, City, 101 W. Third Street, Dayton, Ohio. BAldwin 2-3441, ext. 407. SEND MAIL: 1041 Tudor Road, Dayton 19, Ohio.

WILLIAMS, Leslie (Member)
President, Coordinated Planning Services, 933 Commercial Trust Building, 16 South Broad Street, Philadelphia 2, Pennsylvania. LOcust 3-9985. SEND MAIL: 314 Fisher Road, Jenkintown, Pennsylvania.

YOUNG, J. C. (Member)
Chief Engineer, Porter & O'Brien, 1421 47th Avenue, Sacramento 22, California. GArden 8-4426.

OFF-STREET PARKING

(Continued from page 59)

cilities, including all of the structures. Most contracts call for a minimum guarantee and a percentage of gross receipts on an ascending graduated scale. This form of contract was found to be more easily and economically administered than the form in which allowances are made for operating expenses.

Term of each contract is limited to one year by state law. Proprietary functions, such as sale of gasoline and repair services, are prohibited by state statute. Hence, the only revenues available to meet operating expenses, maintenance and debt service are the fees collected for parking in off-street facilities and at on-street meters.

Facilities not under contract to private operators are managed by the Bureau of Parking. Most of these are metered lots.

The Bureau of Parking is also responsible for the operation of 30,000 on-street parking meters. Maintenance of meters and collection of their proceeds are performed by private enterprises under contracts which are renewed annually.

Institute of Traffic Engineers
SUSTAINING ORGANIZATIONS 1960

The following organizations have contributed to the Technical Research and Development Fund for 1960 and are classified as Sustaining Organizations:

Aluminum Company of America
1501 Alcoa Building — Pittsburgh 19, Pa.
R. G. St. John, Representative

American Transit Association
355 Lexington Ave. — New York 17, N. Y.
George W. Anderson, Representative

Automatic Signal Division Eastern Industries, Inc.
Regent Street — East Norwalk, Conn.
Paul L. Green, Representative

J. E. Bauer Company
1021 N. Mission Road, Los Angeles 33, Calif.
Roy Meggison, Representative

California Metal Enameling Company
6904 East Slauson Ave. — Los Angeles 22, Calif.
Hugh V. Penton, Representative

Cataphote Corporation
2505 Albion St. — Toledo 10, Ohio
J. E. Fagala (P.O. Box 2066, Jackson, Miss.) Representative

The Clinton Company
1210 North Elston Ave. — Chicago 22, Ill.
Richard H. Clinton, Representative

(Continued on page 64)

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CHICAGO BUREAU

(Continued from page 15)

complaints by citizens. Thirty-four thousand such projects were processed in 1959. This section also investigates parking meter locations, loading zone proposals, parking restrictions, various traffic regulations requested by the City Council and establishes speed limits through radar speed surveys.

Inventory

The Bureau of Street Traffic Inventory Section maintains complete files on traffic signs and markings, and pertinent City of Chicago traffic ordinances.

The Inventory Section maintains complete files on the many traffic signs installed.

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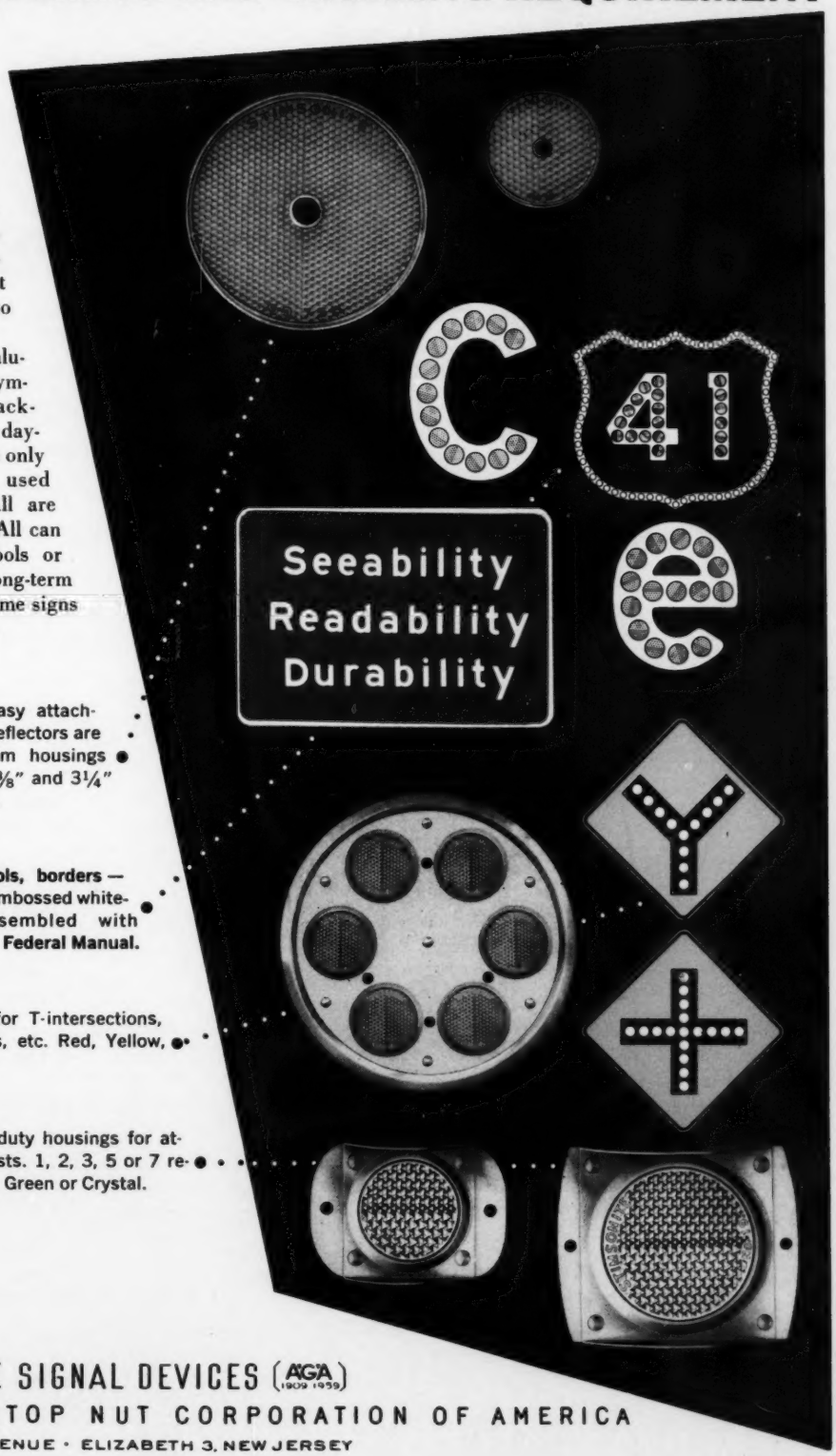

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PARKING METER DIVISION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N. Y.

SUSTAINING ORGANIZATIONS

(Continued from page 61)

Crouse-Hinds Company
Wolf & Seventh North Streets, Syracuse 1, N. Y.
K. C. Eichelberg, Representative

Duncan Parking Meter Division of Motor Products Corporation
835 North Wood Street Chicago 22, Illinois
R. J. Smott, Representative

Eagle Signal Company
Moline Illinois
W. H. Peterson, Representative

Econolite Corporation
8900 Bellanca Ave. Los Angeles 45, Calif.
Aubrey Matthews, Representative

Flex-O-Lite Manufacturing Company
P.O. Box 3066 (Affton Br.) St. Louis 23, Mo.
Charles R. Dernbach, Representative

General Electric Company
Outdoor Lighting Dept. Hendersonville, N. C.
W. E. Schwanhausser, Representative

General Railway Signal Company Electronic Control Division
P. O. Box 600 Rochester 2, N. Y.
Jerome O'Neill, Representative

Interstate Rubber Products Corporation
908 Avila Street Los Angeles 12, Calif.
Clarence R. Fitzsimons, (Western Marketing Service, 149 Highwood Ave., Weehawken, N.J.) Representative

Kar-Trol Signal Company, Inc.
12739 South Main Houston 35, Texas
Jack Hulett, Representative

Magee-Hale Park-O-Meter Company
P.O. Box 7247 Oklahoma City 12, Okla.
G. A. Hale, Representative

The Marbelite Company, Inc.
179 N. 10th St. Brooklyn 11, N. Y.
William E. Lenz, Representative

Minnesota Mining and Mfg. Co.
900 Bush Avenue St. Paul 6, Minnesota
Donald O. Opstad, Representative

Motorola Communications and Electronics, Inc.
4501 West Augusta Blvd., Chicago 51, Illinois
Stanley H. Burg, Representative

Outdoor Advertising Association of America, Inc.
24 W. Erie St. Chicago 10, Illinois
Don Martin, Representative

Pfaff and Kendall
84 Foundry Street Newark 5, New Jersey
George C. Masefield, Representative

Prismo Safety Corporation
Huntingdon Pennsylvania
John C. Horn, Representative

(Continued on page 68)

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Park-O-Meter . . . the first complete, automatic parking meter . . . was then, as today, the world's most MODERN parking meter.

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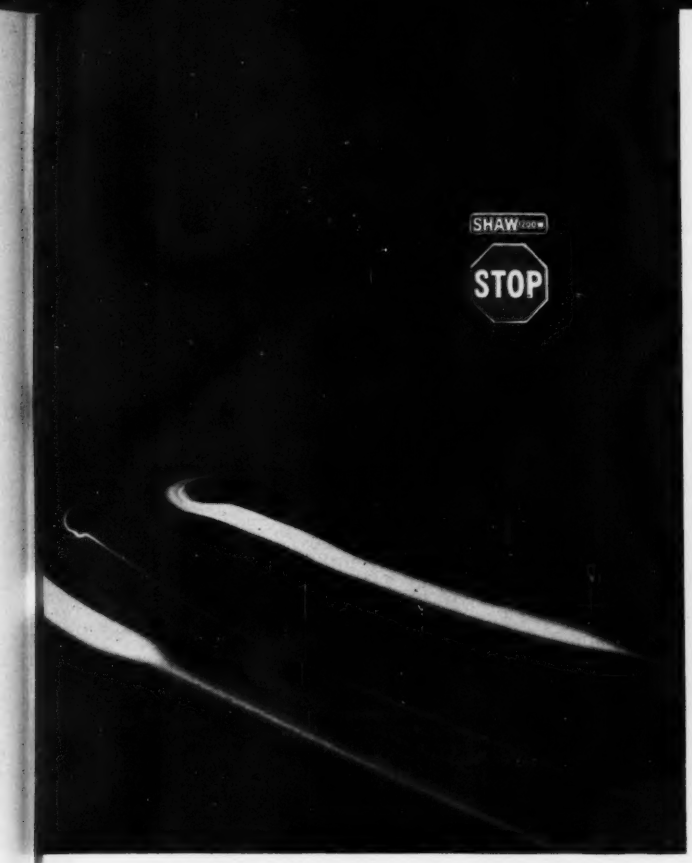
When Fresno County, California, installed street name signs of "SCOTCHLITE" Sheeting, public response was surprising. "In fact," says Director of Public Works Sam Black...

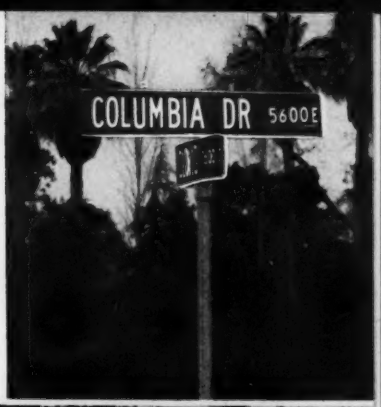
"PEOPLE CALLED US TO SAY THEY LIKED THEIR NEW SIGNS!"

More often than not, the public silently takes signing for granted. That's why it was a pleasant surprise to the Fresno County Department of Public Works to hear such enthusiastic response to the installation of street name signs of "Scotchlite" Reflective Sheeting. Director Sam Black says, "These new signs have caused more favorable comment than any other highway program we have introduced."

Official reaction to "Scotchlite" Sheeting for Fresno County's traffic signs has been favorable from the start. According to Traffic Engineer Peter Koltnow, the material was adopted for good, practical reasons. In addition to "Scotchlite" Sheeting's 24-hour visibility, Engineer Koltnow likes the fact that it still performs at night even though severely vandalized. "Gunfire, for example," he says, "won't put a sign of 'Scotchlite' Sheeting out of business. And a damaged sign can be quickly reclaimed by simply applying a new face of 'Scotchlite' Sheeting in our vacuum applicator."



DAY AND NIGHT, Fresno County's signing system serves local residents and visitors alike. Motorists are guided by signs that logically look the same at any hour . . . signs that present their same identifying colors and shapes at night as they do by day.



20,000 FACES of "Scotchlite" Wide Angle "Flat-Top" Reflective Sheeting clearly identify and delineate 5,000 intersections in the Fresno area. The sign base material is aluminum.

INSTALLATION of Fresno County's new street name signs began in this storage room each morning, as J.D. Whitford drew the names that would be put up that day. All signs were fabricated in the Fresno County Sign Shop, which also manufactures and maintains the traffic signs for 4,000 miles of good roads.

TRAFFIC ENGINEER KOLTNOW takes a look at some brand new signs being removed from the "Scotchlite" 4′ x 6′ Vacuum Applicator by equipment operator M. E. Stainton. "This machine," says Mr. Koltnow, "is a money-saver for Fresno County. It makes the finest reflective signs for less than we can buy them. It allows us to refurbish damaged signs and put them back into service. That's real economy."

For more information about the signing system that serves Fresno County, ask your 3M Representative or write: Dept. RBI-90, 3M Co., St. Paul 6, Minn.

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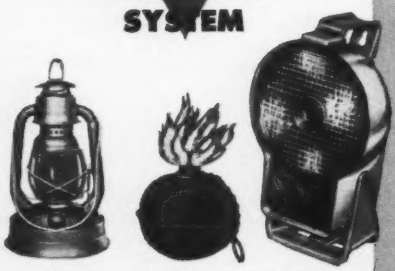

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SUSTAINING ORGANIZATIONS . .
(Continued from page 64)

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Tuscumbia Alabama
Ellis Webb, Representative

Rockwell Manufacturing Company—Dual Parking Meter
400 N. Lexington Avenue Pittsburgh 8, Pa.
J. L. McCullough, Representative

Stimsonite Signal Devices Elizabeth Division of ESNA
1027 Newark Ave. Elizabeth 3, N. J.
John F. Brady, Representative

Streeter-Amet Company
Grayslake Illinois
George F. Graham, Representative

Traffic Signals, Inc.
222 Beach Street Shreveport, Louisiana
J. Frank Williamson, Jr., Representative

The Union Metal Manufacturing Company
1432 Maple Avenue, N.E. Canton 5, Ohio
K. C. Dorland, Representative

Veon Chemical Corporation
22-09 Bridge Plaza N., Long Island City 1, N. Y.
Norman Lipkins, Representative

Winko-Matic Signal Co.
P.O. Box 389 Lorain, Ohio
Irwin Hart, Representative

Section News

WASHINGTON (D.C.) SECTION

The name of the President elected in June was inadvertently omitted in August *Traffic Engineering*.

Officers are as follows:
President—C. C. Robinson
Vice President—William L. Carson
Secretary-Treasurer—Robert A. Keith, 8721 Jones Mill Road, North Chevy Chase 15, Maryland.

METROPOLITAN (NY) SECTION

Officers for 1960-61:
President—Warren Travers
Vice President—Ernest A. Boulding
Secretary-Treasurer—Paul C. Petrillo

FLORIDA SECTION

Traffic Operations Short Course

The First Annual Conference on Traffic Operations, being sponsored by the Florida Section, ITE and the General Extension Division of Florida is taking shape. The course is well rounded in the field of Operations and the list of speakers is very impressive. All persons interested in traffic operations are urged to attend, October 3-5, at Gainsville, Florida.

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TEXAS SECTION

The Texas Section held its Semi-Annual Meeting in Abilene on June 18, 1960. Over a hundred members, visitors and their wives were in attendance.

The technical program consisted of several excellent papers.

The membership, in business session, voted not to co-sponsor a joint meeting between the Western and Texas Sections in Phoenix in 1961, but instead to encourage attendance at the Western Section meeting by all members of the Texas Section who found it possible to attend.

The next Annual Meeting of the Texas Section was set for the weekend of January 28, 1961 in San Antonio, with Mr. Stewart Fischer, Traffic Engineer of the City of San Antonio, as host.

CANADIAN SECTION

The Sixth Annual Training Course took place at the University of Western Ontario from May 30th-June 10th.

Bert Edwards was the Course Director, and Eric Wiley the hard-working Chairman of the Course Committee. Many Section members participated as lecturers and demonstrators.

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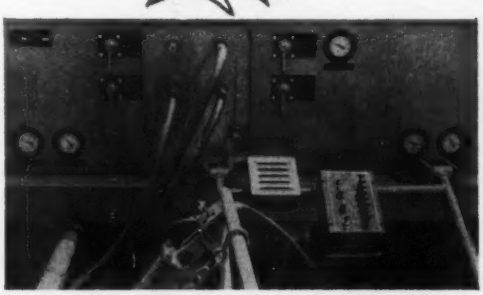

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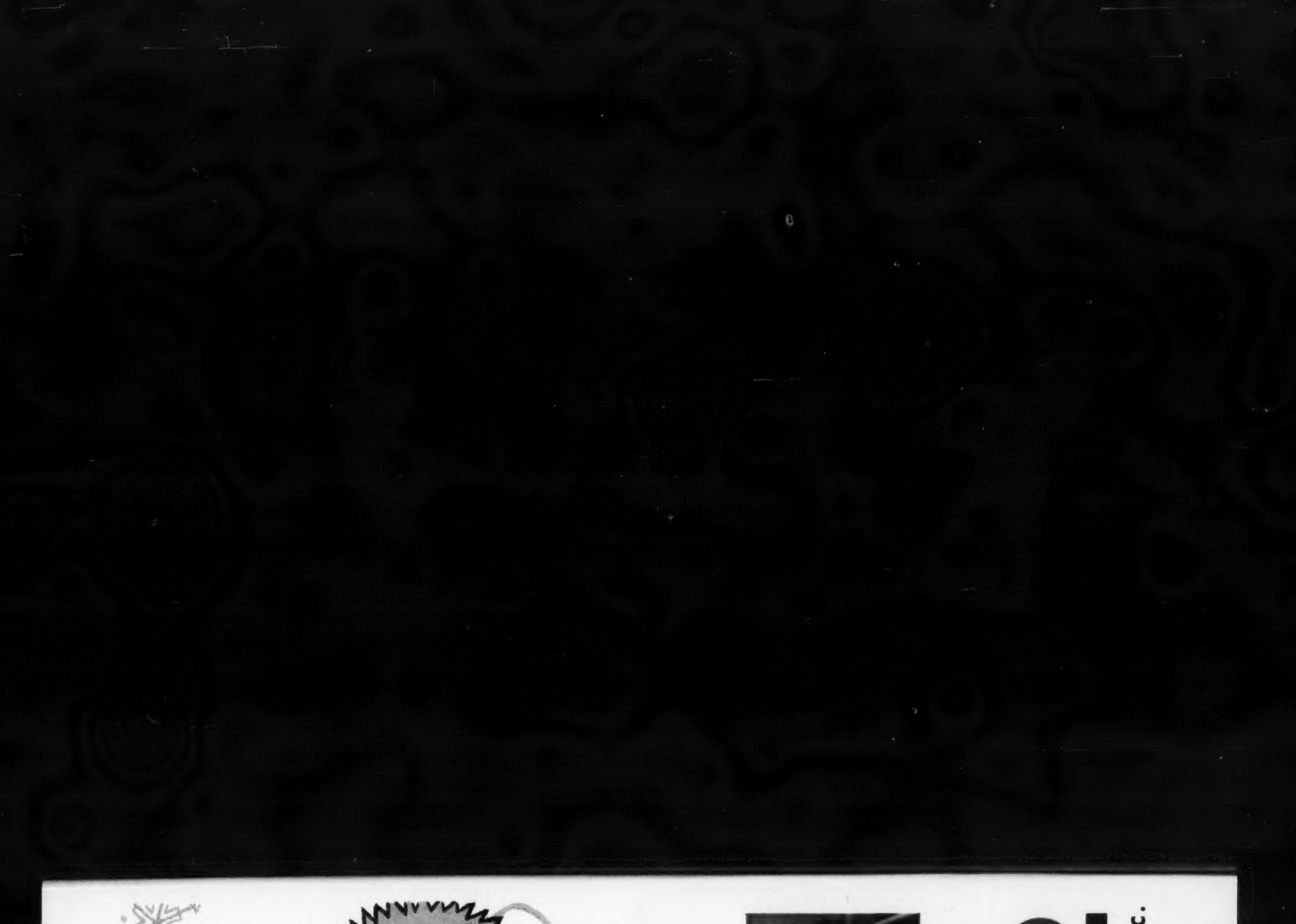
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